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Volta review

THE ASSOCIATION REVIEW

PUBLISHED BY THE AMERICAN ASSOCIATION TO PROMOTE THE TEACHING OF SPEECH TO THE DEAF

FRANK W. BOOTH, EDITOR

February, 1908

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THE ASSOCIATION REVIEW.

VOL. X, NO. 1.

FEBRUARY, 1908.

THE REAL ROMANCE OF THE TELEPHONE, OR WHY DEAF CHILDREN IN AMERICA NEED NO LONGER BE DUMB.[1]

BY FRED DE LAND.

CHAPTER XX.

TEACHING VISIBLE SPEECH.

During the winter season of 1868-69, Prof. Alexander Melville Bell delivered a series of six lectures on Elocution and on the value of his symbolic system of Visible Speech in securing correct pronunciation in the teaching of languages, at the Lowell Institute, Boston. During one of these lectures he referred to the aid that Visible Speech had rendered to teachers of deaf children in England. Miss Sarah Fuller, then a teacher of hearing children, attended these lectures and was deeply impressed by the apparent simplicity of Visible Speech and by what was said of its helpfulness to teachers of deaf children. When she was invited to take charge of Boston's School for the Deaf, she recalled Professor Bell's lecture and at once endeavored to learn more about his system of Visible Speech. The Professor had returned to England, but she found certain of his publications in the Boston Public Library. She consulted Prof. Lewis B. Monroe (who had so warmly espoused Mr. Hubbard's cause, and had certified to the good results accomplished by Miss Rogers with the oral method), but he thought that direct personal teaching from one who fully understood Visible Speech was necessary, if it were made the basis of instruction in speech to deaf children. As Miss Fuller could learn of no one in America who possessed the knowledge

[1] Commenced in the October, 1905, number.

requisite to teach the system, she could only await Prof. Bell's return to this country.

On Tuesday evening, October 25, 1870, he opened the Lowell lectures for the season by delivering the first of twelve lectures on Shakespeare and some of his plays. At Miss Fuller's earnest solicitation the members of the School Board called upon Professor Bell and invited him to visit Miss Fuller's school. He graciously accepted the invitation, and after visiting the different classes, expressed his approval of the attainments of the pupils. Miss Fuller then broached the subject of Visible Speech, and he told of the help that his system had been to deaf pupils and their teachers in England. In reply to an inquiry whether during the six weeks he would remain in Boston, he could find time to instruct the teachers in Miss Fuller's school in Visible Speech, he said that he had spent twenty years in developing the system, and did not wish to undertake the work of instruction. However, the knowledge of his son Graham concerning the system was as thorough as his own, and the service of the son could be secured to give the needed instruction if the School Board so desired.

The suggestion was taken under consideration and after thorough discussion, on February 21, 1871, the motion was offered that "the committee be permitted to expend a sum not exceeding $500 for the purpose of special instruction in said school"; but other questions before the board intervened to delay the actual appropriation of the money until March 14. On the 15th, Mr. King wrote to Professor Bell that he was "authorized to invite your son to come to the school as soon as convenient. Please let us know by mail when he will be with us. There is an immense amount of prejudice to be overcome on the part of *the teachers* in this country. We must have a success here. I want our teachers thoroughly instructed, and your son must not leave them until that is accomplished."

This invitation from the School Board was accepted, as explained in a preceding chapter, and thus it came about that Miss Fuller helped to lay the foundation for many of the blessings that humanity has derived from Graham Bell's efforts to promote the welfare of others.

In the bracing climate of the north Graham Bell had nearly regained his health, and was growing robust. Thus he journeyed to Boston, and on April 1, 1871, entered upon his duties

as a teacher of articulation and Visible Speech to teachers of deaf children. In reality his time was divided between the practical instruction of the pupils and the teaching of the theory of the system to the teachers.

Even as a youth Graham Bell was a man of incessant mental activity, who never realized how much he was doing, how constantly he was working to help others, and how rarely he thought of his own health and comfort. While there was a great improvement in his health when he first came to Boston, it was far from satisfactory, and when he returned to his father's home in Canada, on June 21, 1871, he was almost an invalid, because he was so deeply interested in his work and so ambitious to win success that meals and sleep and all that makes for good health became a secondary consideration.

In after years, Dr. Bell publicly said: "I can remember with somewhat of amusement the feelings which actuated myself when I first came into contact with this school. As a student of the mechanism of speech, familiar with it from my childhood, this subject, in fact, having been the professional study of my family for three generations, I realized that deaf children whose vocal organs were perfect could be taught to speak. I understood, of course, that no one naturally speaks a language that he has never heard, and that as a matter of course a child who has never heard the English language could only acquire it by instruction. I was therefore prepared for the claims of my friend, Miss Fuller, that the deaf children of the city of Boston could be taught to speak. But I must confess that I was extremely skeptical in regard to the possibility of their understanding speech by watching the movements of the mouth. It is more difficult for one who is familiar with the mechanism of speech to realize the possibility of this than for one who is ignorant of it; and to be candid, I did not believe it. Of course I was too polite to say so to my friend, Miss Fuller; but still there was that lurking feeling in my mind, that the claim that deaf children could understand the speech of their friends, to any great or useful extent, was too broad. Observation, however, assured me that the children really did seem to understand, to a very useful extent, the utterance of their friends and their teachers; they were not deaf at home; they were not deaf with their teachers; and my curiosity was so much aroused to ascertain the cause of what

seemed from my point of view impossible as to *lead me to make the instruction of the deaf my life work.*"

Notwithstanding his skepticism Graham Bell so heartily entered upon his duties of instructing the teachers in the proper use and value of the system invented by his father, that when a public exhibition was given on June 13, six weeks after instruction began, "it was shown," the school commissioners reported, "that the very youngest children had comprehended the meaning of the symbols. Taking the school as a whole, it was found that during the month of May over three hundred English sounds, which the pupils had formerly failed to utter by imitation, had been obtained by means of Visible Speech. Class illustration was given of the pronunciation of syllables with differences of accent and quantity, and individual illustrations of the perfect utterances of words and sentences. Adult deaf-mutes were present who had acquired all the sounds of the English language in ten lessons, and who could articulate a large number of words with absolute correctness. One pupil of the school, to whom special instruction had been given in the principles of elocution, read Longfellow's 'Psalm of Life,' from elocutionary marks with natural and expressive inflections of the voice...."

All that may seem very trite thirty-five years later. Nevertheless it was the sensation of the day among the educators of that time. And perhaps its relative value in further stimulating public sentiment in favor of oral education for the deaf, may be shown more clearly by a brief quotation from the report the school committee had made only a few months previous: "The teachers are working with extraordinary patience and earnestness, and the results of their instruction have exceeded expectation. Still it is a question whether it will not be found necessary to supplement the method here used by others, which have long been employed, *such as the manual alphabet or the natural language of signs.*"

How different was the tenor of the official report twelve months later, when the supposed need of signs and manual alphabet had vanished, and achievement and victory permeated every line of a report pregnant with the possibilities that make for and underlie all happiness and all welfare of deaf children: "... Perhaps nothing has contributed so much during the year to the value of the instruction of this school, as the introduction of Visible Speech.... By means of this system *deaf-mutes can be*

taught to articulate correctly." And Miss Fuller stated that "if we had begun our work with a full knowledge of this system, we should have been spared a great amount of difficult and often discouraging labor, and produced much better results." And, later, she stated that "the widespread interest felt in this country in articulation teaching, and the success of the work, are undoubtedly due to the system of Visible Speech."

In 1871, Graham Bell instructed the teachers in the Clarke school in the use of his father's system of Visible Speech. The annual report states that "better results have been attained in three months than ever before in the same period of time; and in the matter of tone, compass, modulation, and inflection of the voice, results never before attained at all." A report dated October 1, 1872, stated: "Greater and better results have been obtained with new pupils, than were possible by the German method. On the part of advanced pupils too, some defects in articulation have been corrected which imitation had failed to correct."

After instructing the teachers at the Clarke School, at Northampton, and teachers in other schools, Graham Bell returned to Boston and resumed his instructions at Miss Fuller's school. In the annual report of the school commissioners are the details of an examination held in December, 1871, to exhibit the progress several pupils had made. One of these pupils was Miss Dudley, the daughter of the member of the legislature who was working earnestly in behalf of deaf children. The report states that Mr. Bell said: "Miss Dudley has been under my instruction for three months. The improvement manifest may be emphatically summed up in the one word 'power.' She has obtained power over the instrument of speech, — such power that she can produce the elementary sounds of foreign languages as well as those of English, by merely studying their symbols; that she can vary her voice in *quality* as well as pitch, sustain it on a level, or inflect it at will, and that she can appreciate certain musical intervals. I have devoted principal attention to Miss Dudley's articulation. In Miss Jennings' case I have aimed at the cultivation of the voice, and the communication of elocutionary principles. Miss Dudley varies her voice *mechanically*, but Miss Jennings can now associate a feeling with every inflection. The latter also possesses the mysterious power of appreciating *relative pitch*. Both of these young ladies are apparently *totally deaf*. I

shall now write a few exercises on the board for Miss Dudley to read. The sounds will be of such a nature that it would be impossible for her to give them by imitation alone. I shall write German and French sounds, and some in the Zulu language containing Hottentot clicks that would defy the imitative powers of anyone here present." The report adds: "Mr. Bell then wrote on the board in symbols of Visible Speech sentences in English, in German, and in French, and some words in the Zulu language containing Hottentot clicks never heard in our speech; all of which Miss Dudley read slowly, but with surprising correctness, and gave the clicks in a way nobody else could imitate. She afterwards read from her symbols of Visible Speech the Lord's Prayer, slowly but very distinctly, with almost faultless articulation, and with apparently deep feeling."

On June 19, 1871, the superintendent of the schools in Boston, Mr. John D. Philbrick, in referring to the examinations in Miss Fuller's school, wrote: "I wish to express very strongly my approval of the course of your committee in employing Mr. Graham Bell to teach Visible Speech in your school. The results of his instruction are more than satisfactory, they are wonderful. His system must speedily revolutionize the teaching in all articulating deaf-mute schools." And at the close of the year Mr. Philbrick wrote: "The result of this experiment with Visible Speech seems to be very significant. It convinced me of the practicability of teaching even congenital mutes perfect articulation, and, also, that by the system of Visible Speech good articulation can be secured in much less time than is required to produce the same result without its use. It is in fact a new and powerful instrumentality in the instruction of deaf-mutes."

The year following his remarkable achievements in Miss Fuller's school, Graham Bell was invited to the leading institution for the deaf in America, and the stronghold of advocates of the sign-language, the American Asylum at Hartford. It had "completed its fiftieth year" on April 15, 1867, the very year that Mr. Hubbard won educational liberty for deaf children. In its fifty-first annual report the statement appears that "the great mass of deaf-mutes, comprising more than nine-tenths of the whole number, can be satisfactorily taught only by the use, in the first instance of their own natural language of signs."

According to the annual report of the American Asylum, Graham Bell "commenced his labors upon the first of May (1872).

.... Instruction was regularly given to a class of twenty-five semi-mutes.... We consider it better than former methods ...." The next year the report stated: ".... Two of the teachers have devoted their whole time to the instruction of forty-six pupils in Bell's method of Visible Speech.... The experiment has been attended with considerable inconvenience and trouble from the necessity for the entirely separate instruction of small numbers at a time, but the improvement made has been decided. Pupils have conquered difficulties in pronunciation and in vocal sounds *unconquerable by previous methods.*" A year later the report read: ".... Visible Speech has proved a powerful aid in their instruction.... Many defects in speech which before were beyond our power to remedy, have been corrected.... We consider Visible Speech as deserving a place in our school." Early in 1873, Mr. Stone stated: "I consider Visible Speech far superior to any method I have known for teaching articulation: *the hopes of the deaf-mutes* in this direction *seem* to *rest upon it.*" And, in August, 1878, Mr. Williams stated: "For the past three years we have given every pupil entering the school a very thorough trial in speech and lip-reading." In the annual report for 1885, attention is called to a student who left the school in 1876, a successful shoe merchant, transacting "business with a great variety of customers, relying almost wholly upon speech and lip-reading."

Yet it was the principal of this same American Asylum, who, nine years before, testified before a joint committee of the Massachusetts legislature, in 1867, that "the recovery of articulation costs more than it is worth. .... the attempt to teach articulation has never been a part of the regular system of instruction of the deaf and dumb, and *I hope never will be*.... We cannot make them (the deaf-born) understand the use of vocal language, with its articulation, its emphasis, its point. It has never been done; *it never can be done.*"

Visible Speech was also introduced in the Washington Institution in 1872, and the following year, Dr. E. M. Gallaudet, previously the pronounced advocate of the value of the sign-language, said, in referring to Prof. Bell's Visible Speech: "Teachers of deaf-mutes generally, are disposed to accept this new process of teaching articulation to the deaf as an important contribution to the existing means of educating this class of persons, and it is believed that within a very few years it will find wide acceptance and approval."

At the Seventh Summer Meeting, Miss Rogers, in replying to repeated requests for some remarks, said in part: "If I could have had the knowledge of Visible Speech when I began the work I could have taught far better than I did. I did not have it, and had to feel my way. Such ignorance as mine was I would not accept in a teacher in these days. I think it would be wrong—yes, a sin—for any of you to begin the work of teaching deaf children to speak when you were as ignorant as I was when I began; but there was no help for it then—none that I knew. I hope you will appreciate the advantages you have, and will do all you possibly can to gain skill in your work, especially by becoming very familiar with Visible Speech."

Although Visible Speech was utilized by the leading sign-institutions within three years after its introduction in Boston, in 1871, it must not be supposed that the system encountered no obstructionists in its progress. On the contrary many disputatious individuals, starting with a false conception of its aim and purpose used good paper and printers' ink in striving to prove that "the symbols of Visible Speech can no more assist a mute in his attempts at vocal utterance than the signs of the zodiac.... we desire only to demonstrate that the means by which he obtains articulation from deaf-mutes are not the symbols of Visible Speech, but his pupils' sense of vision and feeling, and their imitative faculties; and above all, their teacher's mechanical skill in forcing the tongue into the requisite positions for the respective sounds of the alphabet by means of the manipulator (an ivory blade, or spatula or paper-cutter)." Another writer stated: "We are thoroughly convinced that instead of Visible Speech being a help in teaching deaf-mutes to articulate, it is a great hindrance."

Ten years later, that is in 1884, it was stated that "the cause of articulation for the deaf, in this country, *owes much to Visible Speech*, both from the study of vocal physiology to which it had led, and from the fact that it has offered, through its students, almost the only source of supply for the recent and urgent demand for articulation teachers."

In 1890, at the twelfth convention of American Instructors of the Deaf, and the first international convention, Dr. Isaac Lewis Peet, in a scholarly address on "The Relation of the Sign-language to the Education of the Deaf," said: "Articulate speech has been so analyzed that its elements are very generally under-

stood among teachers of the deaf. The positions of the organs employed in producing it have been so clearly defined that the elements of a spoken word are recognizable by the eye, and capable of being imitated by movements of the organs of speech. Speech has been made visible and silence has been made vocal.

"For this result, a debt of gratitude has been incurred to Professor A. Melville Bell, the distinguished leader in the investigation of vocal physiology, whose works must be regarded as the latest and best authority upon every variety of vocal utterance. By his Visible Speech an alphabetic form may be conferred upon every spoken language that has not already been reduced to writing, and the pronunciation of every written language can be presented to the eye. A similar debt is due to Dr. A. Graham Bell, who, better known to fame through inventions of vast moment, is yet known and honored for having devised and introduced an application of his father's system to the case of the deaf-mute. By following out its principles, it is quite possible to teach every deaf-mute to discern, at first slowly, but afterwards more rapidly, the elements of every word as spoken by his teacher, and then to place his own vocal organs in the position that he has recognized as necessary to the production of what he has been told is sound. In this way every intelligent deaf-mute, may, if his vocal organs be perfect, be taught to give in speech with at least approximate distinctness, such language as he knows, and to read the lips of at least one person."

At the Thirteenth Convention of American Instructors of the Deaf, held in Chicago, in July, 1893, the president of the convention, Dr. E. M. Gallaudet, offered the following resolution, which was unanimously adopted:—"*Resolved*, That the thanks of the Convention of American Instructors of the Deaf are hereby extended to Professor A. Melville Bell, of Washington, for his generous gift of $15,000 to the Volta Bureau for the Increase and Diffusion of Knowledge Relating to the Deaf." And the Convention was informed that Professor Bell had also presented to the Volta Bureau the copyrights to all his valuable publications, and had contributed in other ways to promoting its high efficiency.

At the World's Congress of Instructors of the Deaf, held in Chicago, in 1893, Dr. A. L. E. Crouter, principal of the Pennsylvania Institution for the Deaf and Dumb, in referring "to the suggestive and instructive statistics presented by Dr. Bell" to

the Congress, said: ".... In conclusion, I would add my appreciation of the able and exhaustive manner in which these statistics have been collected and collated. The profession is under lasting obligations to Dr. Alexander Graham Bell for the time and study and expense he has so generously bestowed upon this subject, which, to most minds is dry and uninteresting. *To Dr. Bell more than to any other man* not directly connected with the work, are we indebted for the great advance made in teaching speech to the deaf, and in the establishment of oral schools of instruction throughout the country."

CHAPTER XXI.

"No Single Influence Has Done So Much."

In July, 1891, at the Lake George meeting of the American Association, Miss Caroline A. Yale, principal of the Clarke School for the Deaf, in a valuable paper on the "History and Development of Articulation Teaching in America," said: "Visible Speech is the most scientific attempt that has been made to devise characters which should represent each elementary sound by representing the position necessary to produce it.... Perhaps *no single influence has done so much* for the improvement of articulation work in America as the introduction of the system of Visible Speech. The absence of any possible connection between the symbols and the elements which they represent except through their pictorial character gives them a value intrinsically their own. Though at this date the symbols of Visible Speech are taught to the pupils in but few schools, the distinctness of knowledge which familiarity with them has given some of our teachers cannot be over-estimated, and, in general, in no other way has the work been advanced so much as by the greater attention to the study of ways and means on the part of the teachers."

And at the second summer meeting held at Lake George, in 1892, in an able address on "How Can We Best Fit Ourselves to Teach Speech to the Deaf," Miss Yale said, in part: "A fourth topic for the teacher's study should be the exact *formation of each elementary sound.* This study cannot be made too thorough and critical. The adjustment of the organs, the contour of each, the size and shape of apertures, and the character of the action of each organ should become most familiar. To this end

the use of diagrams is of much value, as a means of representing varying positions, and as in themselves abbreviated diagrams no aid is to be compared with a close study of the symbols of Prof. Alexander Melville Bell's 'System of Visible Speech.' So long as these symbols are kept pictorial in their significance the value is immeasurable.... In order to gain a knowledge of the formation and development of English sounds, first of all study Visible Speech."

In view of Miss Yale's conservative statement: "Perhaps no single influence has done so much for the improvement of Articulation Work in America as the introduction of the system of Visible Speech," it is interesting to note the manner in which the general use of Visible Speech was advocated thirty years ago, and to observe how closely the radical ideas then promulgated conform to the accepted teachings of the leading schools today.

In August, 1872, at the National Conference of principals of institutions for the education of the deaf and dumb, held at Flint, Michigan, Alexander Graham Bell advocated the practicability of enabling deaf-mutes to articulate clearly and intelligibly; illustrated his method of instructing deaf-mutes in the elementary principles of Visible Speech; gave a number of difficult tests to show with what accuracy the symbols of Visible Speech may be used in aiding deaf-mutes to acquire the power of mechanical speech, to articulate correctly; stated that he would advise not giving the pupil the meaning of any word until the power of pronouncing it had first been obtained, advising fluency of articulation before definition of the spoken words, etc. After a thorough discussion of the value of Visible Speech, it was unanimously resolved "that the system of Visible Speech impresses the members of the conference as being philosophical, and that it promises great aid in the instruction of deaf-mutes in articulation; that it is deserving of a thorough experiment in our institutions, and that it may be especially useful in the correction of defective utterance among semi-mutes."

An excellent illustration of the breadth and the clearness of Dr. Bell's conception of his subject, in 1872, is shown in the following excerpts from this address at the Flint conference, concerning the quality of the voice, remarks of peculiar interest in view of the experiments he was then carrying on that finally culminated in the inventon of the telephone. Dr. Bell, then only twenty-five years of age, said: "The belief has been and is preva-

lent, among those who have not examined into the matter, that there is some real defect in the mouth that incapacitates it for utterance, and I know that even some teachers of the deaf and dumb (judging, I presume, from the disagreeable noises made by their pupils) imagine that the throat, at all events, is affected, and hence conclude that the quality of the voice must always be unpleasant. But the fact is that the quality of the voice depends very little upon the throat. Indeed, if we could hear the voice as it proceeds from the glottis, I doubt whether it would be materially different from that produced by the reed of a musical instrument.

"Speech is a mere motion of the air. If we cast a stone into water, we see the ever-widening circles of waves that proceed from the centre of commotion. A somewhat similar series of undulations comes from the mouth of a speaker. On the water each successive ripple is the picture of the one preceding it: but the sound waves that succeed each other are of different shapes and sizes. The number of undulations within a certain space give rise to *pitch*, the height or size of a ripple determines the *force* of *loudness*, and the shape of a wave gives the quality or *timbre*.

"In speech, the air within the lungs is urged forward by the action of the diaphragm into the larynx. It is there split up into waves by the vibration of the vocal chords, and these waves are moulded (so to speak) in passing through the pharynx and mouth. Hence, in any vocal sound the force is produced by the action of the diaphragm, the pitch by the vibration of the vocal chords, and the *timbre* by the pharynx and by the mouth.

"Since we can represent, by means of symbols, any position of the mouth and pharynx, Visible Speech is capable of affecting the quality of the voice. Of all the pupils in the American Asylum I do not think there were more than a dozen whose voices could be called harsh. In every case where the experiment was tried the *timbre* was successfully corrected."

Twenty-three years later, at the fourteenth Convention of American Instructors of the Deaf, held in Flint, Michigan, in July, 1895, Dr. Bell, in referring to the growth of the oral movement, said: "At the first meeting of principals, held in this city in 1872, I presented to the profession the system of Visible Speech that had been introduced by my father, as a means of representing the sounds of all languages, the letters represented the position of the vocal chords, in forming certain sounds, and they saw

that this system might become of value to teachers in all schools, by whatever method of instruction, for developing the powers of speech of the pupils. This system was introduced into this country in 1871, by Miss Fuller, whose work you all know. The board met and thought about it, and invited me to come to Boston to make the experiment, and that was the cause of my appearance in this place. The experiment was made, and, as a result, the system was introduced into several schools....."

During the year following his success with the pupils of Miss Fuller and Miss Rogers, and at Hartford, Graham Bell continued to reside at his father's home in Canada, visiting the different institutions in the United States, as requested, and remaining a month or two at each. Then requests from institutions for the deaf increased in number so rapidly as to preclude the possibility of his accepting even a majority. Thus it was thought to be the wiser plan to have the teachers come to Graham Bell. With that end in view he transferred his residence from Canada to the United States on October 1, 1872, and during the next year lived at 35 West Newton Street, Boston. Here he opened a normal training school for the special benefit of teachers of articulation to the deaf, but gave instruction in Visible Speech to teachers, to students desiring to become teachers, and even to deaf pupils.

This normal school was called the "School of Vocal Physiology." The first circular sent out bore the title: "Establishment for the study of vocal physiology; for the correction of stammering, and other defects of utterance; and for practical instruction in Visible Speech, conducted by Alex. Graham Bell, member of "Philological Society of London, England." In this school the theory of his father's system was easily explained and practically illustrated by Dr. Bell. But to afford a greater range in practical demonstrations of the utility of Visible Speech, and of the art of teaching the deaf, he organized a private school of deaf-mutes of all ages to whom free instruction in articulation was given by the students under Dr. Bell's supervision. He also formed a class of hearing pupils having defective speech, to illustrate how readily many defects may be permanently cured. The members of both classes formed excellent experimental subjects for the teachers to practice upon, and at one time there were about sixty prospective teachers under instruction.

Graham Bell contributed descriptions of his father's system of Visible Speech to several periodicals during 1872; and early in 1874 a manuscript periodical entitled *The Visible Speech Pioneer*

was sent to institutions and schools employing this system of symbols in the instruction of pupils. The first number appeared on March 21, and contained the following, among other items:

"It is not believed that the art of symbolizing speech has yet reached perfection; nor is it thought that the best mode of employing the symbols in the instruction of the deaf has yet been devised. *The Visible Speech Pioneer* will afford a means of communication between teachers of the system, and it is hoped that the varied experiences of all may be brought to bear upon the subject. In this way better and better methods of instruction must arise, and the time will come when the term '*dumb*' shall be considered a reproach when applied to the deaf.

"The School of Vocal Physiology which gives birth to this periodical has been established for the purpose of applying the necessary training, and it has been decided to encourage the thorough mastery of the physiological symbols, by granting diplomas to those who may attain proficiency in the art of symbolizing the actions of speech. The first examination of students of Visible Speech will be held in the Boston University, on Saturday, the 27th day of June, 1874."

The fourth number of the *Pioneer* appeared on April 13, 1874, and contained Graham Bell's address on Lip Reading at the first Convention of Teachers of Visible Speech.

For the season of 1876-77 the first term of the normal training school opened October 11, and closed December 22, 1876, while the second term opened January 8, and closed May 16, 1877.

The members of the normal class had one hour's instruction daily, except on Saturday and Sunday. They also had the privilege of witnessing, and were encouraged to participate in the instruction imparted by Graham Bell to a class of stammerers, a class of deaf articulators, and a class of deaf-mutes—a beginners' class.

The terms for the complete normal course was $100. Examination December 16, 1876, and May 15, 1877. Graduation day was May 22, 1877.

Among the graduates were the following:

Class of 1874-75.

Bond, Miss Annie E., Boston, Mass.
Fuller, Miss Sarah, Newton Lower Falls, Mass.
Locke, Miss Abbie A., Buffalo, N. Y.

Class of 1875-76.

Butterfield, Mr. L. A., Boston, Mass.
Crane, Mr. Edward B., Boston, Mass.
Crane, Mrs. H. K., Boston, Mass.
Crozier, Mrs. M. L., Charlestown, Mass.
Farrant, Miss Isabel, Salem, Mass.
Jones, Mrs. Julia A., Westfield, Mass.
Littlefield, Miss S. E., East Boston, Mass.
Mack, Miss Annie E., Belmont, Mass.
Rich, Miss Alice, Boston, Mass.
Worcester, Miss Alice, Thetford, Vt.

Class of 1876-77.

Allen, Miss Susie W., Lowell, Mass.
Ballard, Miss Eva, Framingham, Mass.
Fearing, Miss C. W., Boston Highlands, Mass.
Forriston, Miss Elizabeth R., Chelsea, Mass.
Jordan, Miss Sarah A., Newton Lower Falls, Mass.
Leonard, Miss Annie R., Southbridge, Mass.
Maynard, Miss Inez N., Northboro, Mass.
Osgood, Mr. Fletcher, Chelsea, Mass.
Richards, Miss Laura D., Boston, Mass.
Robinson, Miss Lucy E., Indianapolis, Ind.
Stone, Miss Fannie M., Belmont, Mass.
Summers, Miss Sarah L. D., Jamaica Plain, Mass.

Undergraduates.

Fish, Miss Emeline D.
McGann, Miss Hattie.
Williams, Miss D. N.
Williams, Miss K. D.
White, Miss Manilla.

In 1873, Graham Bell was appointed professor of vocal physiology in the School of Oratory of the Boston University where, in addition to training students in the culture of the voice and the mechanism of speech, he continued to give instruction in Visible Speech to all who were preparing to teach articulation to the deaf. But his private school for the deaf was then transferred to Salem.

This school of oratory had been established by Professor Monroe, a noted teacher of expression in elocution and a warm friend of Mr. Hubbard and Graham Bell. Following the commercial acceptance of the telephone, Dr. Bell resigned the professor-

ship and was succeeded by his pupil, Mr. L. A. Butterfield. That particular school is said to have ceased existence on the death of Professor Monroe; but later Mr. Butterfield established another school of instruction in Boston. Mr. Butterfield wrote: "Professor Monroe was preeminently a teacher of expression in elocution, and he left to Graham Bell the teaching of articulation and Visible Speech. These, as Professor Bell said, had been and could be applied successfully to the cure of defects of speech. Those who thoroughly studied this Visible Speech with Graham Bell in these first two years of the school had an excellent groundwork for a cure of these defects."

Speaking of this school in 1884, Dr. Bell said: "A number of years ago the Boston University established in connection with its departments a school of oratory under the leadership of the lamented Lewis B. Monroe, of Boston; and every articulation teacher, whether a teacher of the deaf or a teacher of the hearing, should remember with gratitude the labors of Prof. Monroe. He established this school of oratory in connection with the Boston University for the study of just these subjects,—for the study of elocution, the study of the mechanism of the voice, the study of vocal physiology; and from the pupils of that school were selected a class to have special instruction from me and from others regarding the special needs of the deaf; and from that class were drawn many of the articulation teachers that we have present in this convention. But a few years ago an important event led to my withdrawal from the active work of instruction in the School of Oratory—the invention of the speaking telephone. Another important event destroyed the School of Oratory—the death of Lewis B. Monroe (in the summer of 1879). The special department for the instruction of teachers in the subject of Visible Speech was for some time carried on, and I rather think is still carried on, but not in connection with any school of oratory or in connection with the University, by my late colleague, Prof. Alonzo Butterfield. I hoped to have seen him here in this convention; but not having actually been engaged in the work myself for a number of years, I am really unable to give the condition of this school. If the School of Oratory were still in existence, you would have the very thing you want, but it is all dead."

In 1880, Dr. Butterfield, then professor of vocal physiology and mechanism of speech in the Boston School of Vocal Physiology, wrote: "Visible Speech will be invaluable in mission fields.

The difficulties which missionaries have experienced in acquiring the pronunciation of the natives of any country and in teaching the natives the pronunciation of their languages, will readily disappear by the use of this system. Visible Speech has already been introduced into China by a missionary from Scotland. Large portions of the New Testament have been translated into the Chinese spoken language and printed in Visible Speech symbols. The Chinese written language and the Chinese spoken language are two distinct languages. The Chinese spoken language had *never been written nor printed until Visible Speech was employed for that purpose....* The discovery of the principles of Visible Speech has made possible the construction and establishment of a universal language."

On Saturday, January 24, 1874, at the First Convention of Articulation Teachers of the Deaf employing Prof. A. Melville Bell's system of Visible Speech, which met in the High-School building, Worcester, Graham Bell delivered an interesting address on the visibility of speech, dividing his subject into the visibility of elementary sounds, or syllables, of words, and of sentences, showed how context is often the key to lip-reading, suggested aids that the lip-reader should render and those that should come from the speaker, etc. The paper was discussed by Prof. Lewis B. Monroe, Prof. Charles Treat, Dr. Ira Allen, Miss Rogers, Miss Fuller, and others.

On Saturday, June 13, 1874, at the Second Convention of Articulation Teachers of the Deaf, held in Worcester, Graham Bell exhibited several methods of visualizing speech. This will be explained more fully in a following chapter.

On July 17, 1874, at the eighth convention of American Instructors of the Deaf, held at Belleville, province of Ontario, Canada, Graham Bell gave an interesting address on the subject of Visible Speech, and its applicability to the instruction of the deaf. He said:

".... The experiments we have just made prove that a person may be directed by these symbols, *how to pronounce sounds that he has never heard.* Deafness need, therefore, be no bar to the acquirement of articulation, if your teachers will accept assistance from Visible Speech. I know that there is an idea prevalent, even among teachers of the deaf, that there is some real defect in the vocal organs of deaf-mutes that incapacitates them from acquiring a good pronunciation. We do not sufficiently

realize the fact that deaf-mutes are dumb, merely because they are deaf. No one would dream of supposing that our mouths were defective because we do not talk Chinese. The simple fact of the matter is that we have never heard that language. It is the same with the deaf-mute. He lives in a world of hearing people, and has been surrounded from his birth by those who talk; but alas! not one sound has ever entered the closed portals of his ears. With all the organs of speech perfect, he is dumb merely because he does not know what to do. If we would teach the deaf-mute to speak, we must of course appeal to other senses than that of hearing. If it were possible for the unassisted eye to discover the mechanism of speech, deaf-mutes would have learned to articulate of themselves long ago; but it is not the case. Many sounds depend upon the adjustment of organs that are quite concealed from observation. By means of these physiological symbols alone can we reveal to the deaf-mute's eye the concealed mechanism of speech. Since there is in the deaf-mute no other natural defect than that of hearing, it is certainly possible to make him like hearing people in every other respect. The time is coming when the term 'dumb' or 'mute' will be considered as a reproach when applied to the deaf. The old dogma 'without hearing, no speech; without speech, no reason,' placed deaf-mutes hopelessly among the idiots and insane. We know how recently they have been elevated to the rank of civilized human beings. We see the injustice of former times, but alas! we are too often blind to that of our own. We recognize at once that deaf-mutes can be taught to think without speech, but alas! how few are they who believe that they can be taught to speak without hearing. People outside of the profession look with incredulity at deaf-mutes, and wonder that they can be taught to think in written words as we think in speech. When deaf-mutes are taught to speak as well as to think, people look upon it as a kind of miracle. The results that are now looked upon with so much wonder, will ere long become every-day facts, and future generations will look back with surprise to the time when civilized nations could allow children that were merely deaf, to grow up with undeveloped minds, and dumb....

"Deaf children are delighted to see their own noises represented upon the blackboard. It encourages them to make new attempts to vary upon the original sounds. The children emulate each other to see who will produce the greatest variety of

noises. They describe the symbols for all these sounds by the means of signs. In process of time they discover that these signs are really descriptive of the physiological actions that accompany the sounds. They are thus led to observe the movements that occur in the larynx, pharynx, or back parts of the mouth, while they are uttering their noises. In this way they are taught to recognize and to control the movements of organs concealed from direct observations. When this stage has been reached, the teacher, instead of following the lead of the pupil, turns round and requires the pupil to follow his guidance. He leads him, by the analogies of the symbols, from his own animal noises to the articulation of English sounds. Every stage of the process is pleasant to the child. He is not discouraged by disheartening repetitions. The process may seem slow and round-about but it is *sure*."

On the following day, during the discussion of a paper on the "Physiological Peculiarities of Deafness" by Dr. George Wing, Graham Bell mentioned "certain experiments he had made upon the development of the sense of hearing of the semi-deaf. He had been surprised on visiting institutions for deaf-mutes to find that the semi-deaf had been left without artificial aids to hearing. Instruments of all sizes and shapes were to be had, from the artificial membrane itself up to the hearing trumpet shown by Dr. Wing." Yet Graham Bell felt that he was right in saying that even in articulation schools no use had been made of hearing trumpets until he suggested it.

Then Graham Bell described the excellent results he secured in educating the power of hearing through the instrumentality of a hearing-tube, and cited a number of cases where persons possessed of a sufficient amount of hearing to be more properly designated "hard of hearing" than deaf, had been allowed to grow to manhood or womanhood as deaf-mutes. One case was that of a young man educated as a deaf-mute, taught by means of the sign-language, married to a deaf-mute, and mingling with deaf-mutes. Yet, in a short time, under Graham Bell's care, this young man was able to "hear and understand words and sentences when spoken in a low tone of voice about six inches from his ear." Graham Bell was "surprised to find how many so-called congenital deaf-mutes had partial hearing. He believed that a large number of them could be taught to articulate without any other artificial means than a hearing-tube. It was difficult to ascertain

the extent of hearing possessed by a deaf-mute. He had seen persons utter words and sentences to deaf-mutes through the hearing trumpet. The pupil would shake his head and be unable to imitate anything; so the experimenter would declare, 'It is plain *that* boy has no hearing.' Now, such a test as that was no test at all. He thought it would puzzle many of those present, possessing the faculty of hearing in perfection, to imitate the pronunciation of a Chinaman or a Dutchman—at least at the first attempt. It would certainly be very hard if he attributed their inability to deafness! But spoken language was just as foreign to the ears of a deaf child as Chinese or Dutch was to theirs."

In 1884, Dr. Bell was asked if he still advocated "the use of his physiological symbols in teaching the deaf to speak?" He replied: "Certainly I do. I advocate a greater use of them, and I advocate even simplifying and making the characters so simple that even the *youngest* child can use them and that teachers can use them with greater facility. I actually advocate a shorthand form of Visible Speech, called by my father Line Writing, because you can use it with such rapidity. The great objection to ordinary symbols is that we use in our schools the printed form of the letters. We have several forms of alphabets; we have printed characters, we have script characters. Now if you are communicating with a person by writing, if you are obliged to communicate by capital letters, it will be a pretty slow and difficult thing, and so in using my father's physiological symbols. I am proposing a greater use of them than has ever been made, and using the shorthand form of the character so that we may write with the speed of speech more nearly than with the speed of printing.... I have considered the advisability of using the line-writing as my father gave it, and the advisability of joining the letters together in the latter part of his work; but I came to the conclusion that it was better to separate the letters, so that the same letter should always come in the same relative position. In shorthand writing you go up and down from the line, and the same letter may stand for two words, and although it is very much more rapid when the letters are joined together, it is simpler and clearer, I think, to write them separately. It makes a clearer picture, and the writing is more rapid than anything else excepting shorthand itself."

CHAPTER XXII.

Visualizing Vibrations of Speech.

On Saturday, June 13, 1874, a second convention of articulation teachers was held in the Walnut street school-house, Worcester, as noted in the preceding chapter. Several important papers on the subjects of articulation and of lip-reading were read. Then Graham Bell described the method of investigating the mechanism of speech invented by Mr. Oakley Coles, of England, and followed with an exhibition of visualizing vibrations of speech with the aid of Koenig's manometric capsule and Morey's improvement of Scott's phonautograph. It will be recalled that when Dr. Bell first met Miss Fuller, he was rather skeptical that deaf-mutes could be taught to read speech. But this skepticism was soon dissipated by the admirable examples constantly before him in Miss Fuller's school. Yet it proved beneficial in leading him to devise a number of instruments in the effort to invent one that would enable deaf children to read speech from graphic presentations of the inflections and modulations of the speaker's words. For then he believed that these illustrations might prove more serviceable than the simple and natural method of watching the movements of the lips and the vocal organs. His first aim was to invent an instrument of serviceable dimensions that should visualize the vibrations of the air set in motion by the spoken word. Following Koenig's method in producing manometric flames, Graham Bell used a membranous diaphragm to divide an oval container into two compartments. Into one he fitted a gas tube, while the other served as a mouth-piece. Igniting the freely-flowing gas produced a narrow needle-like flame. In a sense the flow of gas was controlled by the vibrations of the membrane after the same fashion that the metal diaphragm in the transmitter of the telephone now accelerates the flow of battery current through pressure on the carbon granules. Thus every sound impinging on the membrane caused a corresponding fluctuation in the length and the shape of the gas-flame. Then, by the aid of a set of rotating mirrors, these changing flame-shapes were reflected in ribbon-like, serrated-edged wave-forms that are best described as visualized vowel-sounds. In other words, these fleeting reflections were similar in character to the tracings now recorded on the wax cylinder of the modern phonograph, or its early

prototype, the cylinder of paper coated with lamp-black so familiar to experimenters with the phonautograph devised by Leon Scott, in 1855.

But though he succeeded in disassociating and reflecting in a mirror the elemental components of sound-waves, Graham Bell realized that these shadow-graphs were of too evanescent a character to prove serviceable in ordinary conversation; and to procure permanent shadow-pictures by photographic or other process, would prove expensive. So his next step was to find a method by which a permanent record could be economically obtained. At the Massachusetts Institute of Technology he found an improved form of Scott's phonautograph made by one of the students, a Mr. Charles A. Morey, having a long wooden stylus that afforded enlarged tracings of each movement of the diaphragm, tracings that could be preserved for study and comparison.

Graham Bell had made a thorough anatomical study of the marvelous mechanism of the human ear and was familiar with its many functions. He knew that the external ear serves not only as an ornamental appendage but as a collector or deflector of sound, which, passing through the tubular entrance-way, impinges on the delicate membrane called the drumhead, or drum-skin, which separates the external from the internal ear; that this middle apartment contains the ossicles of hearing, the chain of three small movable bones separately known as the malleus or hammer, the incus or anvil, and the stapes or stirrup, which relay and convey the vibrations of the drumhead to the internal ear, the true seat of sound sensation and separation; that this inner apartment contains Corti's organ of ten thousand strings, which receive sounds through the filaments of the auditory nerve fibres, and there untangles, translates and distributes in harmonic order every variation in tone that the human ear can distinguish. (Dr. Hewson, in referring to Corti's organ, has stated: "We have here what might be called a musical instrument, which is designed, not to produce sounds, but to render them perceptible, and which is similiar in construction to artificial musical instruments, but which far surpasses them in delicacy, as well as in the simplicity of its execution. Hence it is that the organ of Corti has been likened to the keys of a piano; but while in a piano every string must have a separate hammer, by means of which certain sound is produced, the ear possesses a single hammer of an ingenious

form in its ear bones, which can make every string of the organ of Corti sound separately. There are three thousand rods of Corti in the human ear. This would give about four hundred to each of the seven octaves which the human ear can appreciate. Thus we have about thirty-two for each semi-tone. According to Weber, an accomplished musician can appreciate the one-sixty-fourth of a tone.")

Thus it came about that while Graham Bell was watching the wooden stylus trace the curves that correspond to the vocal sounds he caused to impinge upon the diaphragm of Morey's phonautograph, he was impressed with the similarity of action between the movements of the stylus when actuated by the vibratory diaphragm and the motions of the small bones of the ear when the drumhead is set in motion by the impact of sound-waves. And this led him to wonder whether a modified form of phonautograph modeled upon the mechanism of the human ear, would yield more desirable results. With this thought in mind, he consulted with Dr. Clarence J. Blake, an eminent aurist in Boston, professor of otology in Harvard University, and aural surgeon to the Massachusetts Eye and Ear Infirmary, who suggested that in place of an imitation ear, it would be far more satisfactory to use the human ear itself. This novel idea favorably impressed Graham Bell, and, at his request, Dr. Blake secured and prepared an excellent specimen which was made joint use of in carrying on their respective investigations, so closely allied, during the spring and summer of 1874.

The ear secured by Dr. Blake was suitably prepared and mounted on the arm of a stand supporting the mechanism to automatically move a plate of glass in a given direction and at a given speed, while a cylinder or receiver was placed to convey the sound of the voice directly into the ear. One bone in the ear, the stapes, had been removed; then to the incus was glued a selected fibre of wheat straw which extended downward nearly an inch, barely touching the smoked surface of the glass plate; while the necessary mobility of the drumhead and the small bones was obtained by moistening with a mixture of glycerine and water. Then, when Graham Bell sang or talked, laughed or shouted into the receiver, the drumhead of that prepared ear would take up all the vibrations of the voice, as well as all their differentiating characteristics, and pass them on to the stylus which, in turn, accurately copied or recorded them on the sooty surface of the

glass in the form of exquisite tracings. Of the many different sounds that were uttered, each had its own distinguishing characteristics accurately recorded, thus indicating that the particular air particle which produced each given sound performed its mission in a manner peculiar only to that individual sound and in no way common to other sounds.

The records of the Essex Institute of Salem, Massachusetts, show that at the regular meeting, held on Monday, January 18, 1875, Graham Bell "occupied the evening with a singularly interesting and curiously instructive address on the subject of speech, with illustrative experiments of various kinds." With the aid of a camera operated by Rev. E. C. Bolles, Graham Bell exhibited for the first time to a public audience, a large number of tracings he and Dr. Clarence J. Blake had secured in visualizing vibrations of speech. The record reads: "He averred that each note was not a single tone, as it appears to be, but a composite of several, including the fundamental, or loudest, with the addition of overtones and undertones; there was no such thing as a tone pure and simple. He explained the pitch, the quality, *timbre*, and resonance of tones, and showed how they were produced; that ripples are produced in the air by different sounds, each sound causing a combination of wavelets the curves of which can be made visible to the eye and many of which are of exceeding beauty. These were exhibited to the audience by means of a gas jet, whose vibrations were reflected in a mirror."

Photographs of these beautiful transcriptions of human speech were exhibited by Dr. Blake at a meeting of the Otological Society, held early in August, 1874, and there attracted much attention. But while rich in scientific interest, they proved of no direct value for the purpose designed, that is, to aid deaf children in reading speech. But indirectly they proved of great value to the deaf. For, as Graham Bell said: "It was by the study of the shapes and forms of these vibrations that I was led by the different steps to the invention of the telephone." And it was this latter experiment that did lead directly to the invention of the telephone. And later on, deaf children were benefited through having several hundred thousands of dollars received from that invention expended in promoting their welfare; the deaf were also benefited in securing the life services of Graham Bell.

For, while he was studying these beautiful records, and perceiving how easily the drumhead of the ear received and trans-

mitted these voice-vibrations, numberless in variety and characteristics, Graham Bell was forcibly impressed, as he has related, "with the remarkable disproportion in weight between the membrane and the bones that were vibrated by it." Thus he thought, "that if a membrane as thin as tissue paper could control the vibrations of bones that were, compared to it, of immense size and weight, why should not a larger and thicker membrane be able to vibrate a piece of iron in front of an electromagnet, in which case the complication of steel rods shown in my earlier form of telephone could be done away with, and a simple piece of iron attached to a membrane be placed at either end of the telegraph circuit."

Graham Bell rapidly perfected this theory and in October, 1874, explained these views to Dr. Blake at his office in the Hotel Berkeley as well as his belief that "by means of this arrangement undulations should be produced in an electric current corresponding to the undulations of the air produced by the human voice," and prepared sketches to illustrate his explanation of what Dr. Blake called this "absorbing idea of the transmission of human speech." Fortunately these sketches were preserved by Dr. Blake.

Early in 1874, while attending a course of public lectures on acoustics given by Dr. Charles R. Cross, professor of physics in the Massachusetts Institute of Technology, Graham Bell formed an acquaintance with Professor Cross. In the autumn of 1874, Graham Bell showed certain of his experiments to Dr. Cross and explained to him his conception of the feasibility of the transmission of speech. There was a portion of a Reis telephone in the Institute which was shown to Graham Bell, but he explained how he proposed to use a continuous and not a make-and-break current. As soon as Dr. Cross understood that the plan was to transmit speech by varying the current strength or flow by the power of the human voice, he perceived that this "undulating current method was theoretically perfect, and, therefore, in theory adequate to the transmission of speech." Yet he then believed that the electrical effect produced by the vibration of a diaphragm-armature actuated only by the human voice "would be entirely too small to accomplish the desired end." In October, 1874, Graham Bell also described this proposed method of speech transmission to Mr. Hubbard, Mr. Sanders, Moses G. Farmer, Professor Lovering, and others. Mr. George A. Hamil-

ton, Mr. Farmer's assistant, in referring in 1905 to this period, wrote: "At this time, too, Graham Bell began his preliminary experiments, which later gave us the speaking-telephone. I was an enthusiastic participant in some of these, and recall with interest now the fatherly caution then received, not to allow myself to be unduly carried away by some of his theories."

On February 20, 1877, Prof. Charles Robert Cross said: "Three years ago this winter I gave a course of lectures on sound at the Institute. At the last of those lectures in March, I had a long talk with Professor Bell. He didn't introduce himself to me by name then, but he asked this question regarding a piece of apparatus that I discussed: 'Is there any difficulty in keeping a number of tuning-forks in sympathetic vibration by means of a single fork giving the fundamental, of which they are the harmonics?' I told him there was none which I had ever met in practice or of which I had knowledge, also mentioning certain practical difficulties in using the instrument in question. Some weeks after that Professor Bell gave a lecture before the Society of Arts upon the instruction of deaf-mutes. I had some conversation with him after this lecture and made an engagement with him to examine some of our acoustic apparatus. Shortly after this he came to the Institute in company with Miss Locke, and examined a number of pieces of apparatus, especially the phonautograph, upon which one of our students was pursuing special investigations. During the succeeding weeks of the spring we met each other at the Institute very frequently, being interested in certain scientific investigations in acoustics. . . . Late in the autumn of the (next) year, if I recollect rightly, I called upon Mr. Bell at his workshop, and witnessed the transmission of sounds by means of a peculiar receiver constructed of a steel spring. He showed me several other instruments for the same purpose at the same time. At that time Mr. D. B. Hagar, principal of the State Normal School at Salem, was also present. A receiving instrument was also used, embodying the principle used in Reis' telephone, which principle, as I understood Professor Bell, he had rediscovered, he not being at that time familiar with Reis' experiments. These devices used intermittent currents."

On November 26, 1874, Graham Bell wrote: "Mr. Blake (father of Dr. Clarence J. Blake) having kindly offered me the use of a room in his building, No. 77 Kilby Street, Boston, I, this morning, proceeded to set up there the apparatus constructed for me by Mr. Hamilton."

Incidentally it is worthy of note that in these experiments Graham Bell accomplished all that the editor of the *Detroit Post* anticipated in 1870, when he wrote: "If human ingenuity ever hits upon a device for taking instantaneous pictures of sound we may expect some curious results. Instead of verbal descriptions, which flattery and malice too often make untrustworthy, we shall have operatic pictures in which the quality of every tone will be indicated as accurately as though it had been measured with a tape line."

CHAPTER XXIII.

In the Days of His Youth.

Often has the question arisen: How came Alexander Graham Bell to possess the unusual knowledge so essential in comprehending the component elements entering into the problem of speech transmission; and under what circumstances did he evolve his masterly conception of controlling and varying the strength or flow of the electric current by speech, and making that current the vehicle for the transmission of the form or quality as well as the pitch and strength of the spoken words?

While assisting his father in perfecting his system of Visible Speech, Graham Bell, as he was then called, learned much about vocal physiology and the science of speech. He knew that when vocal sounds are whispered, each vowel seems to possess a particular pitch of its own, and that by whispering certain vowel sounds in rapid succession a resemblance to a musical scale is perceptible. To determine the exact pitch of each vowel he vibrated a tuning-fork in front of or as close as possible to the opening of the air-chamber which lies behind the upper teeth, while his father observed and noted the position of the vocal organs, the shape of the mouth, and the pitch of the vowel. But in uttering certain vowel sounds, the use of the tuning-fork did not permit of complete observation, so these tones were secured by "placing the mouth in the required positions and then tapping against a finger placed just in front of the upper teeth, for the higher resonance, and placed against the neck, just above the larynx, for the lower."

During these experiments Graham Bell noticed that in sounding certain vowels certain tuning-forks seemed more responsive, the other forks not being affected. This led him to

wonder whether by sounding the vowel-vibrations of the voice against one fork, a second fork of the same pitch placed a short distance away would take up and sympathetically reproduce the same tones. While he did not succeed in doing all that he desired, he became so elated over the subject, that in 1867, he wrote to Mr. Alexander J. Ellis, president of the London Philological Society, and a leading authority in all matters relating to speech, and gave a detailed description of the results of the experiments. Mr. Ellis, who was then engaged on his admirable translation of Helmholtz's great work "On the Sensations of Tone," replied that experiments similiar to Graham Bell's had already been made and explained by Helmholtz, and in a much more perfect manner. Moreover, that "Helmholtz had not only analyzed the vowel sounds into their constituent musical elements, but had actually performed the synthesis of them, producing, artificially, certain of the vowel sounds through combining musical tones by causing a harmonic series of tuning-forks of different pitch to vibrate simultaneously by means of an electric current passing through a series of electromagnets between the poles of which these specially prepared tuning-forks were placed; while above each fork a resonater was arranged to reinforce the sound."

Nevertheless, Mr. Ellis found some of the results detailed in the letter of so interesting a character, that he arranged for a discussion of the subject at his home in London, and it was during "a delightful visit" there that Graham Bell repeated his experiments, while Mr. Ellis spent a whole day translating passages for him from the German work of Helmholtz. At that time Graham Bell's knowledge of electricity was too slight to enable him to fully understand all the explanations given, but they were of so interesting a character that he speedily obtained a copy of Helmholtz's work and attempted to repeat some of the electrical experiments. He did this, not only because of the fascinating character of the subject, but because he felt that it was his duty as a student of speech to master all the researches of others that bore upon what was to be his professional study, and, therefore, he should investigate speech along the lines described by Helmholtz. In turn these experiments led to the study of electricity, and of certain systems of telegraphy. Then he became greatly interested in the simplicity of the Morse method of reading by sound, and while teaching in Bath, England, in 1867, he had a telegraph wire connecting his room with that of a friend, and experimented in sending messages.

During the years 1867-1870, Graham Bell made a number of electrical devices "based upon Helmholtz's vowel apparatus," and spent much time in producing "an instrument for making and breaking a voltaic circuit with extreme rapidity to take the place of the transmitting tuning-fork used in Helmholtz's researches." In 1869 he realized that it was possible, by the employment of vibrating armatures, having definite rates of vibration, to distinguish between signals sent simultaneously along the same line.

In 1874, Graham Bell stated that "the idea of a multiple telegraph suggested itself to me from the consideration of certain acoustical phenomena. If we press down the pedal of a piano and sing a note, the sound waves, striking against the strings of the instrument, cause that one to resound which corresponds in pitch to the last note sung. If an electro-magnet is placed over each string, and all the magnets are united in one circuit, a series of electrical impulses, corresponding in number and regularity to the sounding-waves existing in the air, passed along the wire will cause a similarly regular intermittent attraction to appear at the magnets, and *that string whose rate of vibration is the same will resound.*

"In the one instance all the strings receive a definite number of *pushes* per second from the air; in the other, a definite number of *pulls* per second from the magnets.

"As the effect of pulling a string on one side is exactly equivalent to pushing it from the other, it is evident that whatever phenomena result from the action of aërial pulses upon the strings, must also ensue from attractive impulses from the magnets. However many notes are sung simultaneously into the piano, each system of sound-waves affects its corresponding string as readily as if the other systems had no existence. Hence, however many different series of regular intermittent attractions appear simultaneously at the magnets, each one must affect its corresponding string as though it came alone.

"It was during the year 1869, or previously, that I first realized the idea that it was possible, by the employment of a vibrating armature having definite rates of vibration, to distinguish between signals sent simultaneously along the same circuit."

The French translation of Helmholtz's book was secured by Graham Bell early in 1870, and, being familiar with the language, he devoted many hours to a study of the volume. Through a

thorough investigation of the apparatus by which Helmholtz succeeded in imitating vowel sounds, Graham Bell secured his "first ideas of a telegraphic instrument for the transmission of signals possessing the property of pitch."

None of the many experiments carried out during the years 1867-1870, possessed any commercial value. Yet they enriched and broadened Graham Bell's knowledge of the subject and thus were stepping-stones to success. Furthermore, they led him to reason that if Helmholtz had found it possible to transmit vowel sounds and musical notes over a wire, why not transmit consonants? And if it should prove possible to transmit consonants, what was to prevent the electrical transmission of speech? Some one has said that "we utter vowels, we articulate with consonants. If we utter a single vowel sound and interrupt it by a consonant, we get an articulation."

Thus there ran through Graham Bell's mind the thought that it should be possible to devise an instrument that would transmit speech as easily as Helmholtz transmitted vowel sounds and he worked with that end in view. In the beginning he could not formulate a definite plan for accomplishing the transmission of speech electrically, nor during his stay in England did he "form any idea of the details of an apparatus for producing speech in this way." Yet the deeper he delved into the science of electricity, the more rapidly his doubts disappeared, and the more his imagination was stimulated to perceive what marvelous results would be attained by providing means for "talking by telegraph." Not only did he feel confident that the day would come when speech would be transmitted over long distances, but he expressed this belief to his friends. And Dr. Whyte, of Elgin, Scotland, often referred to the manner in which, during the year 1868, "Alex. Bell would chatter away about 'talking by telegraph.'" In 1879, Graham Bell said: "I am sure that I stated to friends in England, before 1870, my belief that we should one day speak by telegraph, but I had no idea that I would ever myself be connected with the realization of such a plan."

CHAPTER XXIV.

Evolving the Theory of Speech Transmission.

During the years 1871-1873, Graham Bell devoted what time he could spare from his professional duties "to practical experiments relating to the production of sound by electrical means, with the object of reducing to practice his system of harmonic telegraphy," by which he expected to be able to send a number of signals both ways at the same time over the same wire. These experiments could only be carried on at night, and often late at night, for every moment from morn till eve was fully occupied with professional work, teaching, examinations, lectures, etc. During this period he devised several forms of telegraphic apparatus, and completed a telegraph system in which two or more current interruptors and harmonic receivers were connected on a single circuit. When sending a message, by depressing the key at the transmitter the current would cause the corresponding reed at the receiving end to reproduce the given musical tone, all the other reeds remaining silent. To aid him in making these experiments he strung a telegraph wire from his residence to the house of his friend, D. P. Richards, who resided across the street.

These many experiments relating to sound transmission were all more or less serviceable in broadening his knowledge of that branch of electricity. But from the sending of many signals over one wire at the same time by a make-and-break circuit, the electric-speaking telephone would never have been evolved, though these experiments had been continued along the same line for a lifetime; for conversation cannot be transmitted on an interrupted, or make-and-break, circuit. Laughter, whistling, singing, certain vowel sounds, and even an occasional word emphatically expressed, may be transmitted with an instrument using a make-and-break circuit. But for the intelligible transmission of speech the current must be continuous, yet vary in strength or flow as varies the force of the sound waves impinging on the diaphragm of the transmitter; otherwise the diaphragm in the receiver will not be under the constant control of the speaker; unless under the constant control it cannot copy or reproduce the movements of the diaphragm in the transmitter. And only through a substantial reproduction in the receiver of the movements in the transmitter is intelligible conversation secured. These facts are now well known; but they were first conceived by Alexander Graham Bell,

and first promulgated by him, as will be shown later on. Now we are interested in showing how at first he was simply following the same delusive idea that Bourseul turned loose in 1854, that an interrupted current would convey speech, a fallacy that misled Reis. As Judge Lowell so explicitly said of the Reis telephone: "The regret of all its admirers was that articulate speech could not be sent and received by it. The deficiency was inherent in the principle of the machine. A century of Reis would never have produced a speaking telephone by mere improvement in construction."

In May, 1873, a serious illness, brought on by overwork and too close application to his experiments, compelled Graham Bell to drop everything and return to his father's home, where he remained until October of that year. Then he returned to Boston and again plunged into both his professional work and his fascinating electrical experiments, and so continued during the next fifteen months.

Throughout the year 1874, Graham Bell found every moment of time more fully occupied than ever before. The inestimable value of Visible Speech in educating the deaf was generally recognized; his lectures upon vocal physiology at the Boston University were largely attended, and were carefully prepared; his classes composed exclusively of the teachers sent by the various institutions to receive instruction upon the subject of teaching articulation to deaf pupils, had increased in size, as had also his classes composed of persons, mostly young women, who were desirous of qualifying themselves to become teachers of articulation in schools for the deaf. Then his lectures on articulation were supplemented by experimental demonstrations with individual deaf pupils, while his lectures on vocal physiology were enriched by practical illustrations of the wiser method of correcting stammering, stuttering, lisping, burring, and other defects in speech, as shown in the cases of private pupils placed in his care. Then, in addition to all these professional duties, Graham Bell had undertaken the general education of a deaf-mute boy, as an interesting experiment.

The experiment with the boy G. S., is worthy of special mention. He came to Graham Bell in October, 1872, when five years of age; was born totally deaf, had never spoken a word, had never been to school, but had received private instruction for three weeks from Miss Sarah Fuller. He remained under Graham Bell's tuition for nearly three years, and acquired "a ver-

nacular knowledge of the English language in its spoken and written forms." Ten years later the "remarkable command of language possessed by this boy" was publicly commented on, as well as the fact that "he used the English language with a freedom and an accuracy quite exceptional in a deaf-mute," although, "for several years past he had had no teacher." In teaching the child Graham Bell held that "we should talk to the deaf child just as we do to the hearing one, with the exception that our words are to be addressed to his eye instead of his ear," and claimed that George Dalgarno (1680) "carries his theory so far as to assert that the deaf infant would as soon come to understand written language as a hearing child does speech, 'had the mother or nurse but as nimble a hand as commonly they have a tongue'." And he proceeded "to blend the principles of Dalgarno with those of Froebel" and familiarized "the child with written language" by giving language lessons "through the instrumentality of toys and games" in a school room converted into a play room.

In view of the extent of Graham Bell's professional labors, it will be easily understood that in the autumn and winter of 1874, his time was completely occupied from morning till night, and that any experiments and researches in multiple-telegraphy, or in his "all-absorbing idea of speech transmission" were necessarily carried on when other people were in bed. It will also be understood that his profession was his only support and that it yielded a fairly good income.

Not only were his experiments conducted late at night, but he was compelled to construct his instruments with his own hands as he was afraid to employ an electrician or mechanician until the invention was properly secured by letters-patent, or otherwise. Then he was not a skilled electrician, and did not carry on his "experiments in the same manner they might have been carried on by one more familiar with electrical subjects." Thus many of his experiments were in the nature of research for the sake of information.

Graham Bell said: "For economy's sake, when I wished to construct a new form of apparatus, I took other instruments to pieces and used the materials in the manufacture of the improvement. This will account for the disappearance of many of the earlier forms of instruments. From November, 1873, until the close of the year, I continued experiments with various forms of apparatus, but constructed no new forms, as I was convinced that with the limited time and means at my disposal and with my own

rude workmanship, I could not hope to obtain any better results than I had already done, and that it would pay me better to devote the little time I could spare from my professional duties to the theoretical development of the invention, than to waste my efforts in mechanical work."

Again he said: "All the apparatus, which was constructed between October, 1872, and November, 1873, were made for the purpose of testing my invention of multiple telegraphy, with results that demonstrated one fundamental principle of the invention, that the receiving instrument would not be thrown into vibration to produce its fundamental note, unless it was in unison with the transmitting instrument employed. My experiments from October, 1872, till November, 1873, were chiefly confined to making a transmitting instrument that would vibrate with sufficient regularity to enable me to test my theory of transmitting two or more musical notes along a single circuit. It was not until November, 1873, that I was enabled to perform the experiment successfully. In the winter of 1873-74, at 292 Essex street, Salem, I constructed an experimental line between my place of residence and a barn in the neighborhood, and placed in the barn a small organ containing twelve organ reeds. I employed a man to operate the instrument in the barn, while I noted the effect in my study. I did not have receivers tuned to all these different pitches, but upon placing my ear against the armatures of the receiving instruments employed I could hear the various tones of the chords which the man struck, thus proving that notes of different pitch had been simultaneously transmitted along the same circuit."

In 1874, George S. Hutchings, an organ builder of Cambridgeport, made a miniature seven-reed pipe organ, "combining bellows, wind-chest, and keys with an electrical apparatus and the necessary telegraphic wires," for Graham Bell, in order that he might transmit messages by musical sounds. The first experiments were made in the Williams factory, and then the organ was placed, Mr. Hutchings says, "in the barn at Salem, some three hundred feet distant from the house. The wire was led from the house to the barn. Prof. Bell operated the apparatus in the house, causing the pipes to sound in the barn where I was stationed. I should say he operated the apparatus in the house while I operated that in the barn. I caused the pipes to sound both singly and in combination, while he took notes of the separate tones and those in combination, I making memoranda at the same time,

after which we compared notes, and, to my surprise, they exactly coincided. Prof. Bell stated that he had a resistance equivalent to the distance from Boston to Salem."

Notwithstanding this physical and mental strain, there entered into Graham Bell's life that rare and inexpressible pleasure ever the accompaniment of unselfish labor of love. He found a joy in striving to benefit helpless humanity. If his telegraph and telephone inventions proved to be all that he expected, "we shall have Visible Speech put before the world in a more permanent form," he wrote to his parents. And all through these years of toil and trial, under discouraging conditions, the one thought that appears to have dwelt uppermost in his mind was that the success of his inventions would afford greater opportunities for the exercise of helpfulness to humanity. If wealth came it would not be used in securing selfish pleasure, nor in idleness, for he could not live a life of ease, he would not be a Toledo blade and remain sheathed in a rusting scabbard. His letters to parents and friends are permeated with this desire to help the helpless. Writing to his parents at midnight on October 20, 1874, while on the train running from Boston to Salem, he wrote:

"I am tonight a happy man. Success seems to meet me on every hand. First, pupils pour in.... Second, the medical society has evinced great interest in the ear experiments. Several physicians express the belief that certain vexed questions concerning the mode in which the vibrations of sound are transmitted from the tympanic membrane to the inner ear can be settled, and I was requested to repeat the experiments (see Chapter XXII) upon a fresh specimen using an organ pipe as a generator of sound and affixing the stylus to various portions of the ear that they designated.... I am hard at work on a lecture to be delivered in the Institute of Technology next Wednesday. Subject: 'The Education of the Deaf.' This is to be a free public lecture, and it will be illustrated by an exhibition of pupils of the Boston school. The intention is to excite an interest in the public mind, and having got a large audience together by the prospect of hearing deaf-mutes talk, to call for subscriptions to be devoted to the immediate opening of an evening school for adults."

Then he told of having taken the oath of intention to become an American citizen and of preparing the papers covering his multiple telegraph, and added: "Should I be able to make any money out of the idea, we shall have Visible Speech put before the world in a more permanent form than at present."

SPECIAL REPORT UPON THE DEAF, BASED ON THE RETURNS OF THE TWELFTH CENSUS.[1]

PREPARED BY ALEXANDER GRAHAM BELL, AS EXPERT SPECIAL AGENT OF THE CENSUS OFFICE.

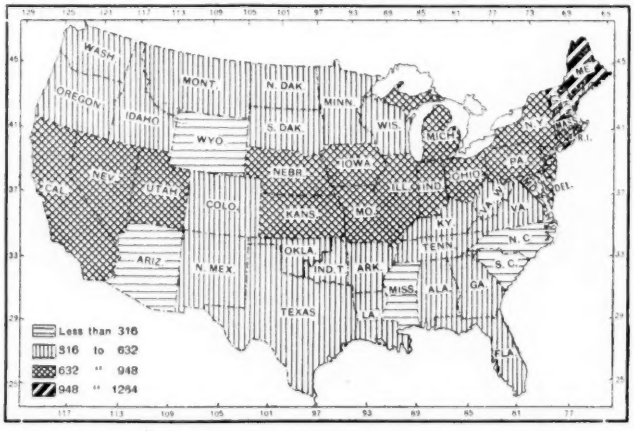
(*Continued from Vol. IX, No. 5.*)

Table XLI[2] gives the ratio per million of total population for certain classes of deaf shown in Tables XXXIX[2] and XL.

Table XLI is illustrated by the series of shaded maps constituting Maps 4 to 9, inclusive, showing the ratio per million of population in each State and Territory reported as deaf from the specified causes.

In 47,967 cases the assigned causes of deafness have been classified by their effect upon the ear, and Map 4 shows approximately the proportion of the population in each State or Territory who lost hearing from the classified causes.

MAP 4.—*Number of deaf from classified causes per million of population, by States and Territories.*



Four grades of shading are employed: The second indicates a proportion double that shown by the first; the third, three times that proportion, and the fourth, four times—at least approximately. The

[1] A reprint of "Special Reports: the Blind and the Deaf," in the part relating to the Deaf; issued by the Department of Commerce and Labor, Bureau of the Census, Washington, 1906. Commenced in the October, 1906, number of the REVIEW.

[2] Omitted from this republication.

largest proportion deaf from the classified causes, indicated by the fourth or heaviest shading, is found in the territory covered by Maine, New Hampshire, and Vermont. The territory covered by the third grade of shading abuts upon this and extends westward as a narrow tongue as far as Nebraska and Kansas, including these States. The next, or second, shading extends pretty uniformly over the rest of the country (excluding the Western division) except in the States of North Carolina, South Carolina and Mississippi. The States composing the Western division with the exception of California, have very small populations, so that the ratios deaf have not the same significance as in the case of the older and more thickly settled States, since the addition or substraction of a mere handful of deaf would make an appreciable change in the ratios.

Broad groups.—It appears that the States having the largest ratios deaf from affections of the middle ear compose a territory covering the New England States and the States bordering on the Great Lakes (New York, Ohio, and Michigan), with an outlying territory in Iowa. The largest ratios of all are found in Maine, New Hampshire and Vermont, and the smallest in the Southern States.

The largest ratios deaf from affections of the internal ear are found in a territory covering the North Central division of the United States (except Minnesota, North Dakota, South Dakota, and Nebraska), with outlying extensions in New York, Maryland, Kentucky, and Arkansas. The largest ratio of all is found in Indiana, and the smallest, if Arizona be disregarded, in South Carolina.

Subgroups.—Maps 5 and 6 show, in contrast, the geographic distribution of the deaf who lost hearing from suppurative and non-suppurative (or catarrhal) affections of the middle ear, and Maps 7 and 8 relate to deafness caused by affections of the labyrinth and auditory nerve.

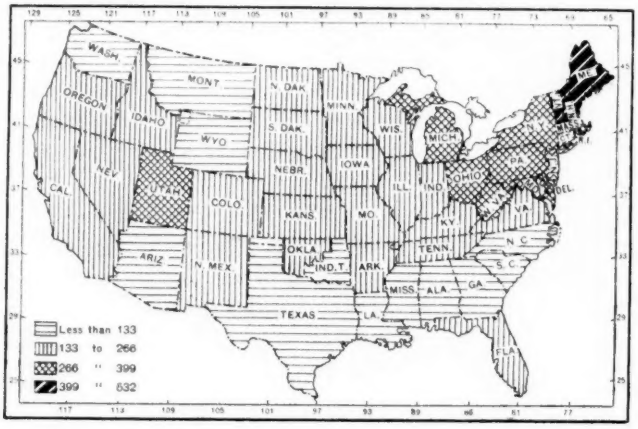
Principal assigned causes.—Map 9 shows the geographic distribution of the congenital (unclassified) deaf.

The larger ratios, congenitally deaf, prevail over the greater portion of the country (excluding the Western division); and the largest ratios are found in a group of States comprising Kentucky, Tennessee, Virginia, and North Carolina, with a detached area in Maine. The largest ratio of all is found in North Carolina.

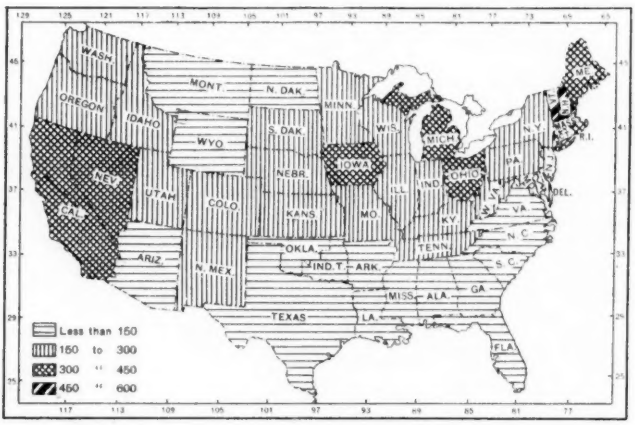
Map 10 shows the average percentage of sunshine in the States and Territories during a period of 31 years (1870 to 1901), from records compiled by the United States Weather Bureau, under the direction of Prof. Willis L. Moore.

It is noteworthy that the area of country having the least percentage of sunshine corresponds very closely to the area showing the largest ratios deaf from affections of the middle ear. We would naturally expect that a cold, damp climate would favor the production of catarrhal affections of the middle ear (Map 6), but the

MAP 5.—*Number of deaf from suppurative affections of middle ear per million of population, by States and Territories.*



MAP 6.—*Number of deaf from catarrhal affections of middle ear per million of population, by States and Territories.*



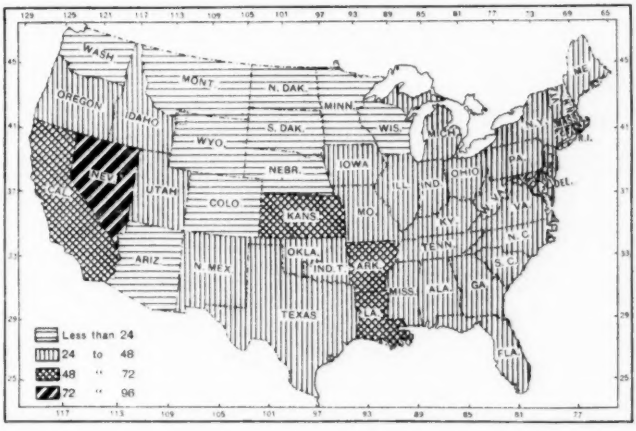
sunshine map corresponds more closely with the map showing the geographic distribution of affections of the suppurative variety (Map 5) caused principally by scarlet fever.

Maps 11 and 12 relate to the geographic distribution of the totally deaf from early childhood (under 5), all of whom naturally are

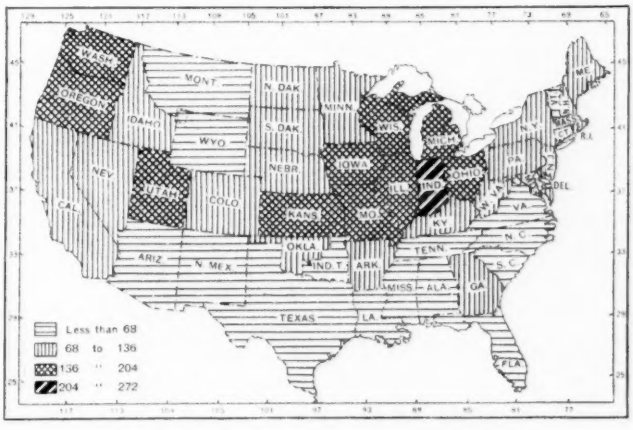
deaf and dumb, distinguishing the congenital cases (Map 11) from the noncongenital (Map 12).

Table XLII shows the deaf from the specified causes, by the age and period of life when deafness occurred.

MAP 7.—*Number of deaf from affections of the labyrinth per million of population, by States and Territories.*



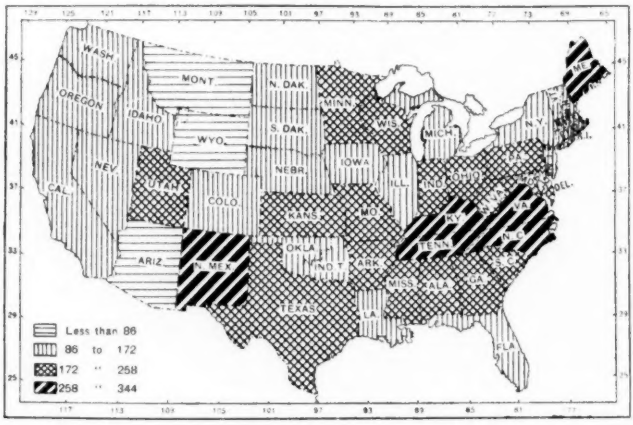
MAP 8.—*Number of deaf from affections of the auditory nerve per million of population, by States and Territories.*



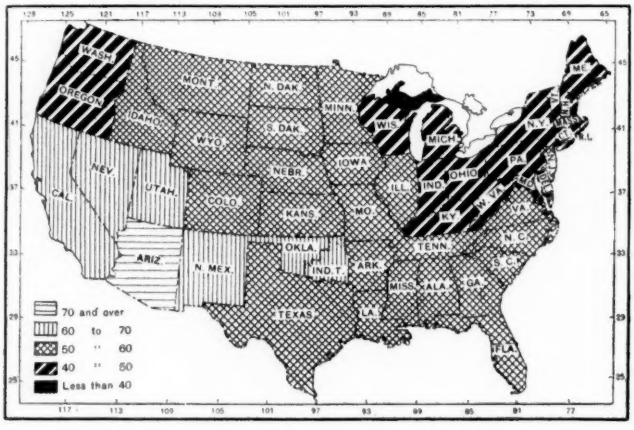
It will be seen from Table XLII that the number deaf from childhood exceeds the number deaf from adult life in each of the three broad groups—external ear, middle ear, and internal ear. This predominance is especially marked where deafness resulted from affections of the internal ear.

The deaf from childhood predominate among those deaf from suppurative affections of the middle ear and affections of the auditory nerve, and the deaf from adult life predominate in the case of non-

MAP 9.—*Number of congenital deaf per million of population, by States and Territories.*



MAP 10.—*Per cent of sunshine in each State and territory, 1870 to 1891, inclusive.*

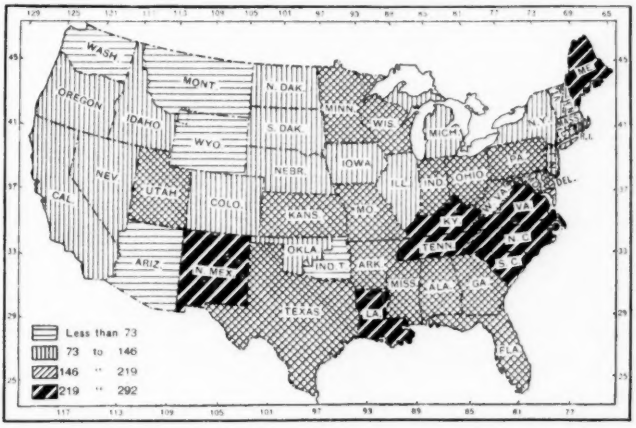


suppurative affections of the middle ear and affections of the labyrinth.

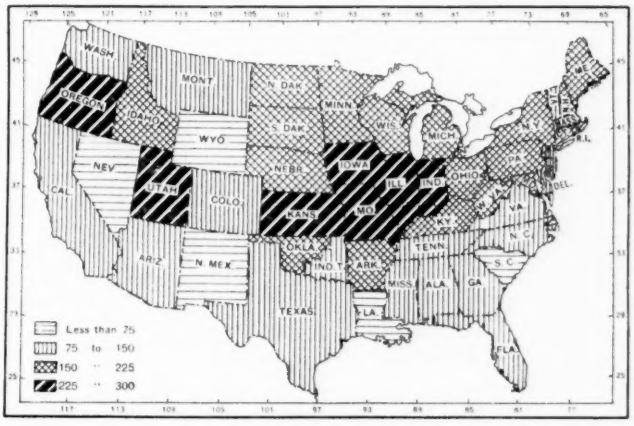
In Diagram 35 the principal assigned causes are considered in connection with the period of life when deafness occurred.

From Diagram 35 it is clearly seen that the predominant causes of deafness are different in the case of the deaf from childhood and the deaf from adult life. Scarlet fever, meningitis, and brain fever, which are among the leading causes of deafness occurring in child-

MAP 11.—*Number of totally deaf from birth (congenital) per million of population, by States and Territories.*



MAP 12.—*Number of totally deaf from early childhood, under 5 (noncongenital) per million of population, by States and Territories.*

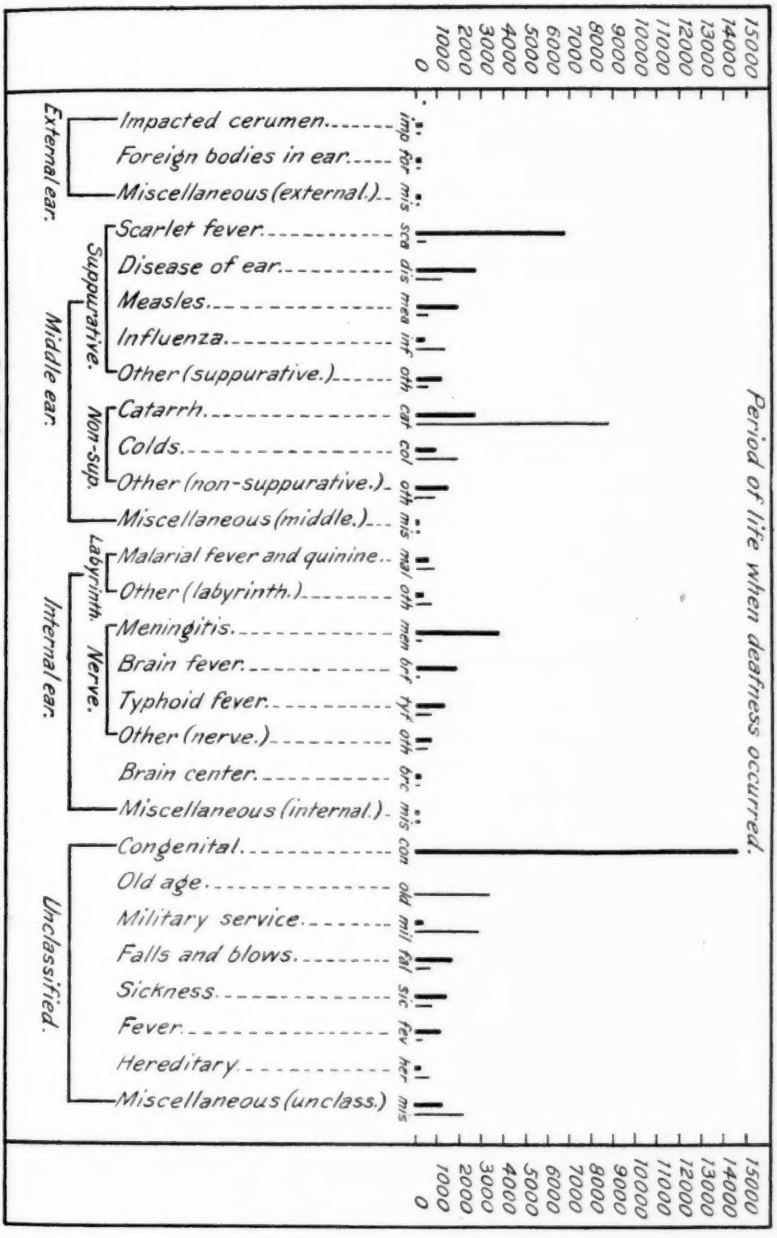


hood, are comparatively insignificant as causes of deafness occurring in adult life. On the other hand, catarrh, colds, and influenza, which are the leading causes of deafness occurring in adult life, are of lesser importance as causes of deafness in childhood. Catarrh is

TABLE XLII.—*The Deaf, by Period of Life and Age When Deafness Occurred and Causes of Deafness.*

CAUSE OF DEAFNESS.	Total.	PERIOD OF LIFE WHEN DEAFNESS OCCURRED.			AGE WHEN DEAFNESS OCCURRED.											
					Under 20.							20 and over.				
		Childhood (under 20).	Adult life (20 and over).	Unknown	Birth.	After birth, under 2.	2 and under 5.	5 and under 10.	10 and under 15.	15 and under 20.	Not stated.	20 and under 40.	40 and under 60.	60 and under 80.	80 and over.	Not stated.
All causes	89,287	50,296	35,924	3,067	14,474	7,396	10,536	7,018	4,464	4,061	2,347	16,588	9,437	6,595	1,021	2,285
Classified	47,067	27,514	19,437	1,016	....	5,748	8,397	5,756	3,459	2,870	1,284	10,242	5,577	2,881	205	532
Unclassified	31,205	20,033	10,838	334	14,474	1,301	1,579	888	623	818	350	4,501	1,931	2,391	723	1,292
Unknown	10,115	2,749	5,649	1,717	....	347	560	374	382	373	713	1,845	1,929	1,323	93	459
Classified:																
External ear	871	484	364	23	.....	73	89	93	111	96	22	185	110	54	1	14
Impacted cerumen	357	200	147	10	.....	10	17	32	68	65	8	89	34	17	.....	7
Foreign bodies in ear	297	149	142	6	.....	15	34	40	25	27	8	69	55	15	.....	3
Miscellaneous (external ear)	217	135	75	7	.....	48	38	21	18	4	6	27	21	22	1	4
Middle ear	34,801	18,205	15,787	809	.....	3,479	5,204	3,798	2,496	2,159	1,069	8,229	4,534	2,405	171	448
Suppurative	17,533	13,054	4,159	320	.....	2,632	4,289	3,045	1,490	872	726	2,072	1,107	791	81	108
Scarlet fever	7,424	6,851	454	119	....	928	2,633	2,017	719	249	305	344	74	13	.....	23
Disease of ear	4,210	2,834	1,278	98	.....	864	724	388	334	241	283	666	373	183	19	37
Measles	2,469	1,925	511	33	.....	424	508	405	279	234	75	412	76	10	1	12
Influenza	1,776	388	1,344	44	....	116	91	74	51	41	15	320	413	525	57	29
Other (suppurative)	1,654	1,056	572	26	.....	300	333	161	107	107	48	330	171	60	4	7
Nonsuppurative	17,260	5,149	11,623	488	.....	847	914	753	1,006	1,287	342	6,156	3,424	1,614	90	339
Catarrh	11,702	2,718	8,646	338	.....	234	308	404	676	899	197	4,668	2,515	1,149	60	254
Colds	3,074	984	1,989	101	.....	181	195	123	176	240	69	990	588	337	21	53
Other (nonsuppurative)	2,484	1,447	988	49	.....	432	411	226	154	148	76	498	321	128	9	32
Miscellaneous (middle ear)	8	2	5	1	.....	.....	1	.....	.....	.....	1	1	3	.....	.....	1
Internal ear	12,295	8,825	3,286	184	.....	2,196	3,104	1,865	852	615	193	1,828	933	422	33	70
Labyrinth	2,726	971	1,669	86	.....	154	232	172	171	201	41	881	514	226	11	37
Malarial fever and quinine	1,636	665	944	27	.....	133	174	102	103	124	29	530	281	113	8	12
Other (labyrinth)	1,090	306	725	59	.....	21	58	70	68	77	12	351	233	113	3	25
Nerve	9,361	7,712	1,567	82	.....	1,989	2,830	1,679	672	405	137	926	404	187	19	31
Meningitis	3,991	3,868	106	17	.....	958	1,566	848	317	120	59	86	16	3	.....	1
Brain fever	2,013	1,933	69	11	.....	609	723	402	127	50	22	48	18	2	1	.....
Typhoid fever	2,055	1,211	823	21	....	129	327	340	192	199	24	600	172	43	1	7
Other (nerve)	1,302	700	569	33	.....	293	214	89	36	36	32	192	198	139	17	23
Brain center for hearing	129	111	13	5	.....	45	33	12	5	5	11	6	3	2	.....	2
Miscellaneous (internal ear)	79	31	37	11	.....	8	9	2	4	4	4	15	12	7	3	.....
Unclassified:																
Congenital	14,472	14,472	.....	.....	14,472	....	.....	.....	.....	.....	....	....	.....	.....	.....	.....
Old age	3,361	....	3,361	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,646	684	1,031
Military service	3,242	292	2,864	86	.....	.....	.....	.....	11	280	1	2,172	482	76	3	131
Falls and blows	2,243	1,528	671	44	.....	373	472	277	188	126	92	326	211	111	6	17
Sickness	2,143	1,339	715	89	.....	349	463	255	109	76	137	308	226	144	11	26
Fever	1,436	1,050	363	23	.....	257	356	194	113	90	40	209	107	35	4	8
Hereditary	909	209	676	24	.....	3	13	29	55	85	24	325	229	76	2	44
Miscellaneous (unclassified)	3,399	1,143	2,188	68	2	319	225	183	147	161	56	1,161	676	393	13	43

DIAGRAM 35.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Period of life when deafness occurred.
External ear.
Impacted cerumen. imp
Foreign bodies in ear. for
Miscellaneous (external.) mis
Middle ear.
Suppurative.
Scarlet fever. sca
Disease of ear. dis
Measles. mea
Influenza. inf
Other (suppurative.) oth
Non-sup.
Catarrh. cat
Colds. col
Other (non-suppurative.) oth
Miscellaneous (middle.) mis
Internal ear.
Labyrinth.
Malarial fever and quinine mal
Other (labyrinth.) oth
Nerve.
Meningitis. men
Brain fever. brf
Typhoid fever. tyf
Other (nerve.) oth
Brain center. brc
Miscellaneous (internal.) mis
Unclassified.
Congenital. con
Old age old
Military service mil
Falls and blows. fal
Sickness sic
Fever fev
Hereditary her
Miscellaneous (unclass.) mis
Deaf from childhood.
Deaf from adult life.

reported as the cause (of deafness) in over 35 per cent (35.1) of the assigned causes of deafness occurring in adult life. Among the unclassified causes it is somewhat noteworthy that most of the "hereditary" cases lost hearing in adult life, and that none of them were born deaf.

The difference between the deaf from childhood and the deaf from adult life may be illustrated by giving in each case the principal assigned causes among the classified cases, in the order of their importance, as follows:

Deaf from childhood:	
Scarlet fever	6,851
Meningitis and brain fever	5,801
Catarrh and colds	3,702
Disease of ear	2,834
Measles	1,925
Typhoid fever	1,211
Malarial fever and quinine	665
Influenza	388
Deaf from adult life:	
Catarrh and colds	10,635
Influenza	1,344
Disease of ear	1,278
Malarial fever and quinine	944
Typhoid fever	823
Measles	511
Scarlet fever	454
Meningitis and brain fever	175

In diagram 36 the principal assigned causes are considered in connection with the age when deafness occurred.

Under 2.—The congenitally deaf form the mass of those who lost hearing before the age of 2, and among the noncongenital cases scarlet fever, disease of ear, measles, meningitis, and brain fever seem to predominate slightly over the other causes assigned.

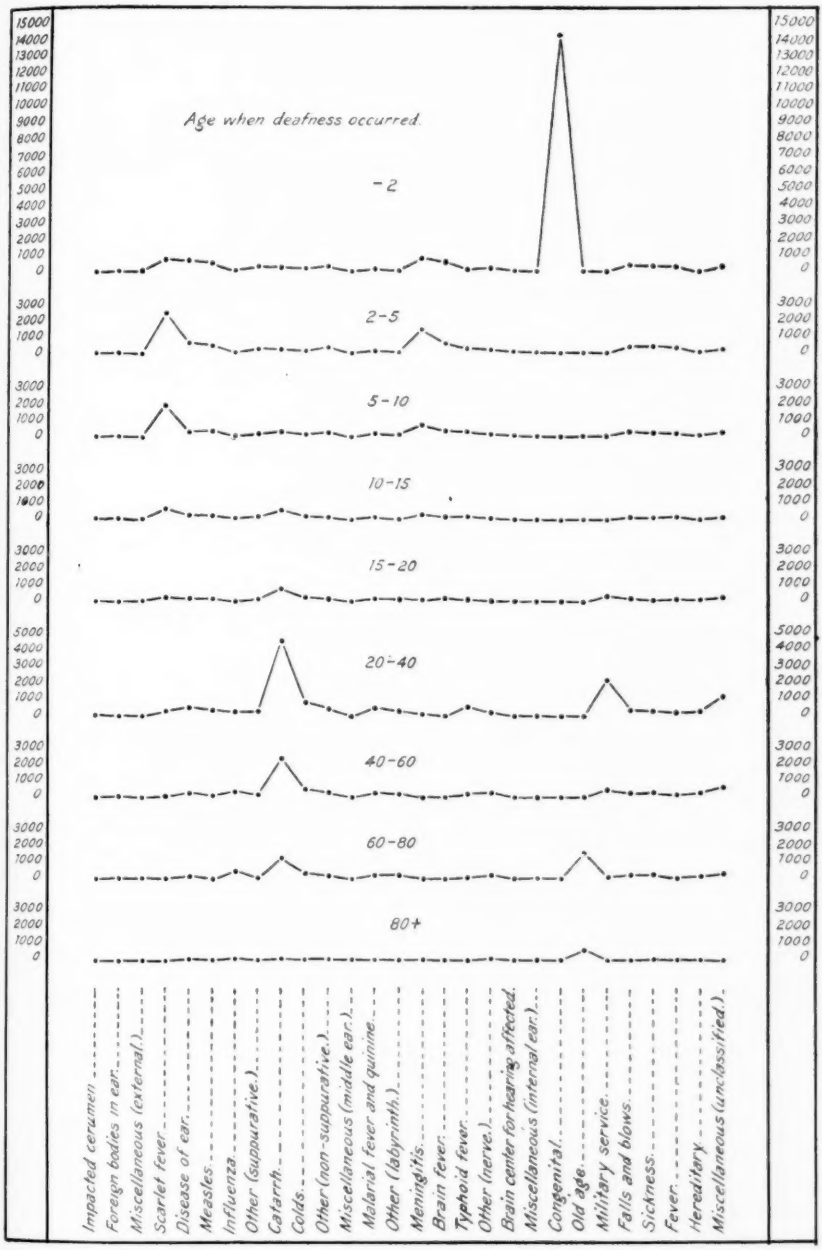
2 and under 5.—Scarlet fever and meningitis stand out prominently as causes of deafness occurring at this period. Disease of the ear and brain fever are next in importance. It is interesting to note that over 65 per cent of the cases due to brain fever occur before the age of 5.

5 and under 10.—Where deafness occurred between 5 and 10 years of age, scarlet fever is markedly the leading cause, and meningitis only slightly predominates over the other causes.

10 and under 15.—No single cause seems to be predominant in a marked degree. Scarlet fever and catarrh are slightly conspicuous. Meningitis is less conspicuous than in the preceding groups.

15 and under 20.—Catarrh now takes the lead, but only slightly,

DIAGRAM 36.


Age when deafness occurred.
-2
2-5
5-10
10-15
15-20
20-40
40-60
60-80
80+
Impacted cerumen
Foreign bodies in ear
Miscellaneous (external.)
Scarlet fever
Disease of ear
Measles
Influenza
Other (suppurative.)
Catarrh
Colds
Other (non-suppurative.)
Miscellaneous (middle ear.)
Malarial fever and quinine
Other (labyrinth.)
Meningitis
Brain fever
Typhoid fever
Other (nerve.)
Brain center for hearing affected.
Miscellaneous (internal ear.)
Congenital
Old age
Military service
Falls and blows
Sickness
Fever
Hereditary
Miscellaneous (unclassified.)

and scarlet fever and meningitis no longer appear as conspicuous causes.

20 and under 40.—Deafness occurring in adult life between the ages of 20 and 40 seems to be due chiefly to catarrh. A considerable number, however, report deafness as caused by military service. Malarial fever and quinine, and typhoid fever, which are also slightly conspicuous, are more prominent at this period than at any other.

40 and under 60.—The only conspicuous cause is catarrh, but it is less conspicuous than in the preceding age period.

60 and under 80.—Deafness occurring between the ages of 60 and 80 is chiefly recorded as due to old age, although catarrh still shows conspicuously, but in a much less marked degree than in the two preceding age periods.

80 and over.—The only conspicuous cause assigned for deafness occurring at this period is old age. Two-thirds of the cases occurring after 80 years of age are due to this cause.

In relation to the four principal assigned causes of deafness it may be noted that congenital deafness occurs exclusively at birth, and deafness due to catarrh almost exclusively in adult life. Meningitis produces deafness chiefly before the age of 5 and scarlet fever before the age of 10.

Table XLIII shows the percentage deaf from childhood and from adult life for each of the principal assigned causes.

From Table XLIII it is seen that in affections of the middle ear the proportion deaf from adult life more nearly approaches the proportion deaf from childhood than in either of the other two broad groups, although the proportions in the several causes under affections of the middle ear vary greatly. The proportion deaf from childhood is largest in affections of the internal ear, being over 70 per cent of the total number of such cases. In only one of the leading causes under this group does the proportion deaf from adult life exceed that of the deaf from childhood, namely, in malarial fever and quinine.

More than 90 per cent of the deafness from scarlet fever, meningitis, and brain fever, more than 75 per cent of the deafness due to measles, and over 65 per cent of the deafness due to disease of the ear occurred in childhood; on the other hand, more than 60 per cent of the deafness from influenza, catarrh, and colds occurred in adult life.

TABLE XLIII.

Per Cent Distribution of the Deaf, by Degree of Deafness, Period of Life When Deafness Occurred, and Principal Causes.

CAUSE.	PER CENT DISTRIBUTION OF THE DEAF BY—				
	Degree of deafness.		Period of life when deafness occurred.		
	Totally deaf.	Partially deaf.	Deaf from childhood.	Deaf from adult life.	Unknown.
All causes	41.9	58.1	56.3	40.2	3.5
Affections of external ear	23.8	76.2	55.6	41.8	2.6
Affections of middle ear	29.4	70.6	52.3	45.4	2.3
Scarlet fever	55.8	44.2	92.3	6.1	1.6
Disease of ear	32.4	67.6	67.3	30.4	2.3
Measles	38.6	61.4	78.0	20.7	1.3
Influenza	15.4	84.6	21.8	75.7	2.5
Catarrh	11.6	88.4	23.2	73.9	2.9
Colds	18.9	81.1	32.0	64.7	3.3
Affections of internal ear	62.9	37.1	71.8	26.7	1.5
Malarial fever and quinine	26.8	73.2	40.6	57.7	1.7
Meningitis	90.4	9.6	96.9	2.7	0.4
Brain fever	86.6	13.4	96.0	3.4	0.6
Typhoid fever	44.2	55.8	58.9	40.1	1.0
Unclassified	54.3	45.7	64.2	34.7	1.1
Congenital	87.1	12.9	100.0	.....	.....
Old age	3.4	96.6	.....	100.0	.....
Military service	11.6	88.4	9.0	88.3	2.7
Falls and blows	46.8	53.2	68.1	29.9	2.0
Sickness	46.8	53.2	62.5	33.4	4.1
Fever	52.8	47.2	73.1	25.3	1.6
Hereditary	13.4	86.6	23.0	74.4	2.6

Among the unclassified cases about 75 per cent of the "hereditary" cases lost hearing in adult life. It is noteworthy that over 70 per cent of the deafness due to fever, over 65 per cent of the cases due to falls and blows, and over 60 per cent of the cases due to sickness occurred in childhood. It is interesting also to note that 9 per cent of the deafness due to military service occurred in childhood (under 20 years).

(To be continued.)

A VISIT TO AMERICAN SCHOOLS FOR THE DEAF.[1]

ANDERS HANSEN, NYBORG, DENMARK.

[Below is presented a translation of the report of a visit of inspection of American Schools for the Deaf, made by Prof. Anders Hansen, Assistant Director of the Nyborg, Denmark, School for the Deaf. The visit was made in the spring and summer of 1906, and the report was originally printed in "Nordisk Tidskrift för Döfstumskolan," the official organ of the Danish-Norwegian-Swedish Schools for the Deaf. American teachers, and all others interested in our schools, will be glad to know of Mr. Hansen's impressions, which he gives so fully and in such admirable detail, and the more so from the fact that he comes from a country that is looked upon as one of the most progressive in the line of our work and well in the lead in some of its more important features.—EDITOR REVIEW.]

The education of the deaf in America can celebrate its centennial jubilee in a few years, as the first permanent public school for deaf children was opened in Hartford, Conn., in 1817, with Thomas H. Gallaudet as the principal.

A similar institution was the ensuing year established at New York, and, not long after, a third was erected in Philadelphia, and within shorter or longer intervals one school after another was founded in the various States of the Union.

From what here is said it will be seen that the movement that swept over the civilized world a hundred years ago to bring help to the deaf child ran almost parallel in Europe and America, although some few States of the old world were in advance, and served as a model for the young Republic.

It is a well-known fact that the first method of instruction for the American deaf was after the French pattern, and consequently signs were for a long time dominating in the schools until they afterwards, to a certain extent, became replaced by the manual alphabet and writing. At the present time the Oral method is brought more and more in use from decennium to decennium, a transformation of methods that is partly due to the excellent results produced by that

[1]Translated for the ASSOCIATION REVIEW by the author, from his Report in the Nordisk Tidskrift för Döfstumskolan.

method in some prominent schools and partly to the resolutions of such important conferences as that in Milan in 1880 and in Brussels some years later, which have influenced the minds of the educators of the deaf on both sides of the ocean.

There has been hard fighting between the two opposite methods in America, too, but I believe without creating as much personal ill-feeling among the opponents as has been the case among us. An attempt of far-reaching importance has been made from America to reconcile the controversy of the Manual and the Oral methods and elaborate a Combined expedient that should possess the advantages of both.

The most influential champion for that idea is no doubt Dr. E. M. Gallaudet, the founder and President of the famous college at Washington.

If a chemist intends to produce an alloy out of two elements, he has first to find out whether they will assay, and next under what conditions and proportions. Well, I don't know whether any prominent psychologist ever has investigated the problem of uniting two so different methods, but on the basis of what I have seen—first and foremost in America, but also in Scotland—I doubt somewhat about it. The continual growth of the Oral method contains perhaps the most reliable argument against the superiority of the Combined system.

The first thing that strikes the visitor to deaf schools in America, and that arouses his admiration, is the splendid school buildings, with all their accommodations and conveniences in regard to light and air, and their heating plants, baths, etc., and plenty of space to move in for sport and recreation.

Most part of our deaf schools have also new and quite good premises, but our exigencies of elegance and convenience are absolutely modest. In that part of the school hygiene which depends on large, airy rooms, fine ground for sport, etc., the Americans have advantages.

The medical care for the pupils is quite effective, and I believe it is superior to ours in some respects, which can be of great practical consequence for pedagogical results. I shall, for instance, refer to what has been done by the otologist at the Mt. Airy Institution, Philadelphia. He has constated defective vision in from one-fourth to one-third of all pupils, and ordered glasses in all needy cases. What impaired and unaided eyesight means for children taught after the Oral mehod is known by every teacher. All chil-

dren entering the school are usually examined by an aurist; and, besides these more special examinations, each single child is examined in a more general way several times yearly.

The big schools have their own infirmaries, well equipped with all necessary remedies and appliances, where the sick pupils are cared for by trained nurses. Even some of our provincial infirmaries are conducted under more humble conditions.

The deaf schools are not blind to the importance that lies in the conservation of their pupils' teeth; the larger ones amongst them have a special room for the dentist, who comes once or twice a week not only to pull, but more to fill and cleanse attacked teeth, and give orders how to care for them by systematic treatment.

When in Philadelphia, I saw the measuring and examination of the pupils, which is made twice a year in connection with gymnastics and sports, for the purpose of studying their effect on the physical growth of the children. The material thus obtained is of considerable value, not only scientifically, but also practically, for if anything is going wrong preventive measures will be taken.

All schools assure the sports a prominent place in the curriculum.

It is baseball that is the craze of the American youth. That game is played all over the country with eagerness that in cases approaches to rudeness. Saturday is never used for ordinary school work; the afternoon is generally assigned for sports; it would be against the public feeling to go in for sports on Sunday.

Although each child born is dependent on the diet from the first to the last moment of its existence, a strange confusion as to the most healthy diet still prevails amongst the human race. Until science has proved of what the best diet is made up, the popular opinion holds that bill of fare best that contains plenty of meat, bread, butter, fish, vegetables, fruit, and milk. If that view be correct, the American institutions are a little ahead of us. The food our deaf pupils get, both in the institutions and in the foster homes, is more frugal and especially less daintily served.

Through bacteriological examination of the foodstuffs, some institutions endeavor to prevent diseases being brought into the school. In Philadelphia they even extend that examination to sweets, etc., which can be bought at cost price from the steward of the institution. All over is to be found the most praiseworthy care to protect the children against any ailment.

Herbert Spencer declared that the condition for success in life was to possess physical strength, or, as he puts it, "to be a good ani-

mal." I really believe that American schools have a clearer conception of that very important question, and that they work more conscientiously than we do to solve it.

Another very effective factor for the health of school children is the amount of work we require of them. It is a well known fact that there has prevailed some bitterness of feeling amongst the adult deaf population in Germany against the schools and their former teachers, probably only justified by the strenuous work exacted from little deaf children. Happily no such accusations have been heard in our country, where the adult deaf and his teacher are living on very friendly terms; but, nevertheless, I believe that we are close to the boundary of what we dare demand of our pupils without surpassing the permissible limit and risking similar consequences.

You will very often find pupils of five to six years of age in the American schools, and these are treated as fragile little persons, not having more than some few hours of class work daily, the rest of the time being used for games and regular occupations inside or in the grounds, under proper supervision. But also in the higher grades is the weekly number of recitation hours and lesson hours smaller than with us. The American school youth is unquestionably passing a more comfortable time in the school than is the case in many countries in Europe. If no other witnesses were at hand to this fact, at least the time table would confirm my statement.

It is a most difficult matter to know what is the best means to keep up a high standard of discipline in a school, but I really believe the Americans are nearer the ideal than we are, although I could easily find fault with their system, too.

The American teachers of the deaf, of whom only a mere minority are men, pour out much more motherly love over the souls and hearts of little mischievous pupils than do their colleagues over here. Occasionally I saw children choking back their tears without any other punishment than a mild and heart-warm scolding. Believers in the far shorter and more impressive form of punishment—the spanking—would certainly look down upon such treatment as mere sentimentality. However, love is powerful, and I think it quite possible that it leads to the desired end. I do not want to say that I have been entirely converted to the discarding of corporal punishment in all cases, but I think it should be used with great discernment and care.

The inclination a child may have for bad behavior, carelessness, or bad temper toward classmates is very likely not easily cured by

hard punishment, but mildness, and especially patient exertion of influence on a child, may be a better remedy.

As I here have mentioned, it is not in a few respects that the American school for the deaf has genuine advantages—exterior as well as interior localities, the work required of the pupils, diet, relation between teacher and pupil, etc. When the American deaf child leaves school he will undoubtedly go away with a rich store of good remembrances, for the love wherewith the pupils were surrounded in several schools I visited was both touching and inspiring.

A capital advantage the American school has over ours is, its course of instruction is much longer. Very often the State allows the pupils to stay at school until 21 years of age; thus it is we meet pupils having been 12 to 13 years in school; and what an extension of 4 to 5 years of our school term would mean for their instruction is not difficult to understand. But education of the deaf not being compulsory, it is handicapped by careless parents, who too often keep their children back from school to let them go out to work, when they only have acquired a very elementary education. That part, however, of the pupils who complete the whole course of instruction leaves school with a stock of useful knowledge which our children could not possibly acquire during eight short years. If we compare the corresponding grades in the American schools and ours, I think it would be difficult to point out which of them has obtained the best results in a given time—a fact which proves that there is good work done in the deaf schools on both sides of the ocean.

A characteristic trait in the American school is, I believe, the great pains they are taking in inducing their pupils to independent reading of papers or books. That feature is by no means strange to us, but it is carried out more thoroughly in America. The printing offices connected with so many of the big schools render a most appreciable service for this reading purpose. A good many schools edit their own school paper, which contains columns of variable difficulty, adapted to suit the several departments of the school. These school papers form an excellent pedagogical aid for the teacher, and as long as we cannot have similar assistance for the work, we have reason for complaint.

Besides this, all schools are well supplied with reading matter for their children of various kinds and values—newspapers, lots of magazines, and plenty of books in the library; and sometimes loans of books are made from the public libraries that are to be found in every self-respecting American city.

Owing to the maturity and greater discernment of the pupils, you will find clubs of various kinds in the American schools. Some of them are of mere sociable character, others of literary, and others again for religious purposes. No doubt their sessions further the spiritual development of the members.

The field of activity where the American school indisputably is superior to the European is in the trade teaching. The excellent system of manual teaching we find in some of the large institutions

is, of course, incident to the longer term of instruction, and we could not possibly adopt it except we could prolong the term simultaneously, and even then it would be a difficult problem to solve, owing to the smallness of our schools and institutions, as to whether the number of trades taught in each school would be too restricted or much too expensive.

Amongst the schools I visited, I should think that trade teaching was taught most excellently at Mt. Airy, Philadelphia, and at Washington Heights, New York, but also in other schools I saw work exceedingly well done.

For the sake of convenience I shall refrain from going into detail, and only mention what is taught at the Mt. Airy institution, where the pupils commence to work in the industrial department when they have entered the intermediate classes. They are kept at work some hours every day in the following industries: Baking, masonry, cabinet-making, painting and glazing, printing, shoemaking, tailoring, and even butchery. The girls are taught drawing, sewing, dressmaking, laundry work, ironing, cooking, etc. The pupils master the work so well and the demand for hands is so great that they easily find occupation, and are well paid for their service when leaving school. Especially are the circumstances excellent for young compositors, who can earn from $17 to $18 a week to start with. But if you were to witness the skill with which they handle the heavy presses or the linotype, you would perhaps not be astonished.

The majority of the American deaf children get their education in institutions, whereof the largest can accommodate between 500 and 600 pupils.

As a rule, the staff has no other duties than to teach in the classes; when not in class the children are under the care and direction of supervisors; and in some institutions there are almost as many supervisors as there are teachers, the pupils being divided into small groups, each under the care of its supervisor, which arrangement makes it quite easy not to overlook the wants of anybody.

Although the boarding system is the prevailing one in America, a new form, the day-school system, has lately become quite common in several places, especially in Chicago and Wisconsin. The eminent scientist, Dr. Graham Bell, has worked with great zeal for the spreading of the day-school idea, making it thus possible for the parents to have their deaf children living a real family life in their own homes. This is so far an advantage, but in other respects the system is handicapped with drawbacks.

In the above I have tried to generalize some of my impressions from my visit to American schools in the summer of 1906, which impressions perhaps can be put into two statements:

1. Besides giving free admission to all deaf children to good elementary instruction, those of the pupils who want to pass through the higher grades acquire an amount of knowledge we could not possibly teach our pupils in our eight years' term.

2. The pupils have in many schools the opportunity to learn a trade so thoroughly that when graduating they are able to earn their own living as skilled workmen.

Report upon Individual Schools.

The first American institution I visited was in Mt. Airy, a suburb of Philadelphia, with 510 pupils. This school has, under Dr. Crouter's skillful leadership, been transformed from a Combined school into an Oral, with the exception of a special department containing 30 pupils, or about 6 per cent, unfit for Oral education. These latter are taught manually.

This institution was the third on the American continent, and formerly was situated in the center of the city, but in the nineties was removed to a beautiful site in Mt. Airy, where splendid buildings have been erected. With its different premises, playgrounds, and lawns, it covers 70 acres of land.

The school consists of three departments, each in an excellent locality, having its own household and a special principal. We who have only very small schools for the deaf are perhaps disposed to think that the single individual must get lost in such a crowd of pupils; but this does not necessarily follow, as I was also told that Dr. Crouter, for instance, knew every one of all the 510 pupils, and in some cases even knew their family relations. I dare say this institution is one of the very best in America, both in regard to the amount of knowledge it imparts to the children and the good results secured in speech and lip-reading; and, as before mentioned, this school possesses the most complete system of trade teaching in existence, and it may thus, in this double quality, serve as a model of a modern school for the deaf.

It is well known also in Europe that in America there has been started homes for the training of little deaf children before school age. Maybe it is not incorrect to say that Miss Garrett's training home in Bala, Philadelphia, is the most interesting of this category. The leading ideas for this special training may be explained briefly as follows: Each little child born, whether hearing or deaf, must be born with some degree of congenital disposition for speech as a means of communication to others, being a descendant of hundreds of preceding speaking generations; consequently, it will be quite correct to treat even little deaf children as the other children, and speak to them in the same manner, in order to give nature the opportunity, by the help of the other faculties, to compensate, and even cover, the lack of hearing.

I visited this school in company with Mr. F. W. Booth, the able editor of Association Review, who follows the work in Miss Garrett's school with the closest attention. There were 60 pupils on the roll, whereof the youngest were two to three years old. The length of the course is six years. It was both interesting and amusing to see these little ones moving about with their toys, the teacher speaking to them exactly as she probably would do to little hearing ones

of the same age. At this early stage the means of expression were inarticulated sounds or natural gestures. Very often their entire face was transformed into one great sign of interrogation, which, from time to time, cleared up into a broad smile when some meaning had been found out of the many queer movements the little eyes saw the lips of the teacher making; or it was the expression of the teacher's face that was translated and caused the smile. Soon the little child tries to imitate the movements of the mouth of the teacher, without, however, having any idea of what it really means. I got the conviction that many of the older children were exceedingly clever lip-readers, though they were very young, and probably did not know all the words the teacher used. But with regard to a distinct articulation, I am sure that Miss Garrett has been led astray by her theories. I consider it to be quite impossible for the majority of deaf children to acquire a fairly distinct pronunciation without the aid of systematic drill, and, so far, I was not deceived by what I heard. In most cases, it must be said that the articulation was not satisfactory, but, agreeable to the principles followed, I was prepared for that result. I have, however, to state that in some cases, even with congenitally deaf children, I noticed a very good articulation—a fact I would not have believed possible to obtain by the methods in use.

If Miss Garrett could alter her views upon the processes a deaf child, as a rule, has to follow to acquire a distinct articulation, and adapt her proceedings in accordance thereto, instead of, as now under all circumstances, believing in nature's power to remedy itself, I should think the results in articulation, and consequently of the whole school, would gain so much that they could stand every criticism.

When the pupils have ended the course in Miss Garrett's school, she tries to induce the parents to place them in ordinary schools among hearing children. Skeptics told me that only a few of these deaf thus placed were able to follow the instruction successfully, an assertion that sounds quite reasonable in the ears of an experienced teacher of the deaf, but contrary to this supposition are the written statements from teachers of some of these children in the public schools who testify that they can follow the class without handicapping the instruction. In the institution in Mt. Airy I found 37 of Miss Garrett's former pupils, either placed there directly from Miss Garrett's school or after an unsuccessful trial in a school for the hearing. All of the teachers in whose classes these pupils were found complained of the difficulty or impossibility they had in the eradicating of strongly established faults in articulation and transforming them into a correct pronunciation.

There are several schools for the deaf in New York city and the suburbs, but I did not find time to visit all of them. I made a selection of them, and saw the Fanwood institution, the school in Lexington avenue, and Mr. Wright's private school.

The first mentioned school is the second oldest in America, and only one year younger than the famous Hartford school. It had last year 490 pupils, and is very ably conducted by the principal, Dr. Currier. I think this institution has perhaps a more distinctively American cut than the other schools I saw, which made it not less interesting to me. All the exterior things—buildings, appliances, etc.—are perfection itself, or close to perfection; in many respects elegance, approaching to extravagance, prevails from the basement to the chimney pots. The school is owner of considerable wealth and can afford some display of it. All the boys wore uniforms and were enrolled in a cadet corps. In the morning a division of the brigade walks to the flag pole and runs the Stars and Stripes to the top under military salute; at night it is again lowered under similar ceremonies. It is with full music at the head that the pupils march to the dining-room at meal times. Though it was common to notice good discipline in the several schools when the pupils went to the table or to the class rooms, to the gymnasium or to the shops, I saw nowhere more punctuality displayed than when the pupils marched in, five hundred in number, to the huge dining hall; it was a pleasant sight. Dr. Currier assures me that the discipline among the boys has ameliorated considerably since the introduction of the cadet corps. I shall not deny that it was rather queer in such a democratic country as America to see the male teachers wear a uniform and a saber and to hear the sounds of drums and fifes in a deaf school.

Apropos of the music, the band consisted of four or five drums, four or five fifes, and a couple of signal horns. The very able drum-master had, through patient and diligent drill, succeeded in teaching the band, purely mechanically, for most of the players were entirely deaf, to play several marches and the national anthem quite well.

The method in use in this school is eclectic; the principle is that each child should be taught after the method or methods for which he is best fitted, which in practice is the Combined system.

In the lower grades I saw oral work practiced to great extent, but was struck by its diminution up through the different grades, and in the upper grades it was the silent method that prevailed. It looks as if articulation is suffocated in the companionship with signs and the hand alphabet, which, *theoretically*, should be an aid.

Though the results obtained may be said to be quite satisfactory—the essays of commencement day were even excellent—I saw still finer results, for instance, in the Northampton school, where the pure oral method is in use. It seemed to me that the tendency in the Fanwood school is in favor of more oralism, and I have no doubt that such an able man as Dr. Currier will follow that movement which is so obvious in the American schools of the deaf of the present day—more stress laid on the oral instruction and less on the manual. There was a special class for deaf-blind pupils in this place, wherein three girls showed excellent work. Altogether it was an interesting visit, well worth a stay of several days. The site of

the institution is simply splendid—on a high bluff on the banks of the Hudson river, where busy boats are steaming up and down.

The institution on Lexington avenue was started as an oral school, and that method is still exclusively in use. The attendance was about 220 pupils, and it has been in continual growth for years. The premises are now so overcrowded that it is impossible to admit more, and the principal has to refuse many applications for want of place. The surroundings do not allow any extension of the buildings; the only way open is upwards. The buildings are comparatively new and very good, which makes it a serious matter to take the decision to move to another site. It is rather pitiful to see such an excellent school in that dilemma. The present principal, Mr. Gruver, an able young man, has been teacher in the Mt. Airy school several years. He has brought good order into things somewhat entangled at his arrival. I have only good remarks to make upon the instruction given. Both articulation and lip-reading were satisfactory. The trade teaching is, however, carried on under more modest forms and less completely than in Mt. Airy, Philadelphia, or in Fanwood, New York.

Mr. Wright's private school contained about a score of pupils, spread over different grades; there were from two to four children in each class. The instruction is entirely oral, or aural, and the results corresponded well to the ideal circumstances these happy children were placed under. The principal, the teachers, and the pupils formed one large family, where every opportunity was present for the development of the speech. Mr. Wright used in several cases the microphone, and expects to derive some profit from it. In most other schools I visited the confidence in this or similar apparatus seemed to be somewhat scant, even if they were well equipped with such appliances.

As previously mentioned, the first American school for the deaf was established in 1817. In its grounds are statues erected for the two men whose names will be forever connected with the pioneer work for the deaf in that part of the world—Thomas Hopkins Gallaudet and his faithful assistant, the deaf Frenchman, Laurent Clerc.

The old time and the new seem to meet in this school, with its 160 to 170 pupils. The main wing is very old, more than eighty years, an uncommon age for buildings in the States, while the infantile department, the shop building, etc., are brand new, with splendid equipment. The old manual method is dominating in the old building, where several old teachers are on the staff, whilst their young colleagues in the other section mostly use and believe in oralism. The principal, Dr. Williams, is equally esteemed by the two camps of method in America, for it cannot be denied that sympathy and antipathy are often distributed in accordance with method standpoint in America as well as in Europe.

The Clarke School, with about 150 pupils, is perhaps the best of oral schools, or, I should rather say, of all schools of the deaf in America, in regard to high attainments in knowledge, especially

history, distinct speech, and lip-reading. The stock of learning with which the graduates leave this excellent school was, in my opinion, superior to what I saw in other places.

The "first citizen" of America, Mr. Hubbard, who was also the father-in-law to Dr. Graham Bell, has done very much for the establishment of this school, as well as for the oral method as a whole. It is now under the—both by friend and foe acknowledged—capable leadership of Miss Caroline A. Yale. This school h lds a unique position in one respect—all the teachers, except a man in the cabinet shop, are ladies!

It has not seldom been contended that the boys would suffer and grow up effeminate when exclusively surrounded by women. There may lie some truth in that opinion, but, under the present regime in the Clarke School, I did not see anything of it. I have nowhere met nicer young men than there.

What is accountable for the fine results in this place? The main factor is, of course, the principal and the excellent staff she is surrounded by; they all seemed to be animated with a mild Christian belief that their work was something of a mission, this spirit being combined with intelligence and indefatigable zeal. In the second line comes the excellent staff of supervisors, almost as numerous as the staff of teachers. Even if the number of supervisors is more limited, and the supervision consequently less effective, in the other schools I visited, they were everywhere more numerous in the American schools than they are in ours and in the institutions I have visited in France and Great Britain. There was one supervisor for each ten pupils in the lower grades of Miss Yale's school; the pupils are thus always under skillful care of trained persons, both in the class and outside its walls, a circumstance that speaks highly for the good results.

Miss Yale has recently had the great satisfaction to see two of her former pupils enter one of the most famous American universities of the East, to follow the study of civil engineering, both being able to follow the course, though congenitally deaf.

A normal class for young ladies desirous of joining the profession as teachers of the deaf is connected with this school; the length of the course is one year. The number of students has hitherto been too limited, owing to the lack of endowments for that purpose, but through the last generous gift of the great benefactor of the deaf in America, Dr. Graham Bell, the outlook for this activity has been bettered. In the future the normal class will be enlarged to accommodate ten students.

The site of this school is very fine, on a wood-covered hill, with free view over the fertile valley, through which the Connecticut river winds its way like a silver thread, and kisses the feet of the blue hills in the background of the beautiful landscape.

In the Horace Mann school, in Boston, which had about 150 pupils enrolled, I met another well-known female pedagogue, Miss Sarah Fuller, whose name is connected with the teaching of articu-

lation to Helen Keller. Her school was the only day-school I visited on my journey. With a few exceptions, all the pupils lived with their parents. Contrary to what I expected, this state of things did not seem to further the use of speech and the efficiency in lip-reading. It must be admitted that the hours spent in school are fewer for these children than for boarders, and consequently the manner in which the pupils use a good deal of their time every day is almost out of reach of the control of the school; this disadvantageous circumstance handicaps the results.

Miss Fuller has induced a circle of ladies in the town to take interest in her girl pupils in the upper grades; these ladies have formed a committee that visit the school a couple of hours once a week to speak to the children, and occasionally they invite the girls to their homes, and a bond of sympathy is thus created that can be of high importance for the girls. I deem this activity of so much interest that it is well worth being imitated by other schools.

Miss Fuller has also exerted great activity for the establishment of a home school for little deaf children before they reach school age. It is situated in a suburb at a distance from Boston, and is called the "Sarah Fuller Home."

When I had finished my stay in Boston I went westward to Rochester, which is reached in a day by express. Part of the journey is over the rails that now form the great highway between New York and the West; it goes through a beautiful country, annually passed by many thousands from our Scandinavian countries on their way out to the far West.

I had expected to find another interesting school for the deaf in Rochester, and am glad to say that I was not disappointed. I believe there is no more zealous champion for the exclusive use of English and the total discarding of signs in the instruction of the deaf than is Dr. Westervelt. I am pretty sure that the place is entirely without conventional signs, as they are made superfluous by a means of communication that cannot be misunderstood, namely, the ordinary single-hand alphabet. When the teacher spells on the fingers to the class he speaks the words simultaneously, but it is, of course, impossible to tell how much of that speech is grasped by the eyes of the pupils, whose chief aim it is to read the spelled words. As in other combined method schools, the instruction in speech and lip-reading is only given in special lessons, and the perfection the pupils attain therein is very similar to what is obtained in similar schools. Notwithstanding these unfavorable circumstances, I have to state that I met some very smart lip-readers in this school who were congenitally deaf.

The commencement exercises took place during my stay in the Rochester school. The graduates—that is, that part of the pupils who have finished the whole course—were that day the recipients of much attention from many sides. They were placed on the platform, nicely dressed, and addresses were made to them. They received some very pretty presents, and they were guests of honor at a

reception in the principal's house. They were, however, also active partakers in the exercises. Each of them had elaborated an essay, after the custom of the country, on a subject they had chosen themselves, which they recited for the audience. The contents of the several essays proved these young people to have a good command of language and to be in possession of a good general judgment. In this connection we must remember that it is by far not all the pupils of a school who leave it as graduates, for if that was the case we Europeans would see ourselves left too far behind by our friends in young America. The majority of the pupils do not attain the top classes of a school, and a great many leave the school in no way better equipped than with us.

In the Rochester school I knew that the Lyon phonetic alphabet was in use, and I was greatly interested in seeing it in practice. Mr. Lyon, the genial inventor of this alphabet, which is adapted to all sounds of the Melville Bell Visible Speech, is not a teacher of the deaf, but a well-to-do man living in Rochester, whom I had the pleasure of meeting several times. He has taken great interest in educational matters, especially in the education of the deaf, and has spent much time in the classrooms of the Rochester school. To my mind, it appeared as if Dr. Forchhammer's hand positions in his mouth-hand alphabet are easier, but Mr. Lyon was of the opposite opinion. The Lyon system is taught in the Rochester school and mastered by a good number of the pupils, but it is not in use outside the classroom in the special lesson hours.

Another noticeable particularity for this school is the clear conception had of the advantage of imitation in the acquisition of language. Already even in the lower grades a voluminous flood of language is poured out over the minds of the pupils, and some of it takes root.

There was a feature in the Rochester school that impressed me; it was the unusually affectionate relation between the principal and the pupils. Many natural fathers and mothers do not extend as much love to their offspring as does this stranger to their sons and daughters. That religious conviction, which is very conspicuous, both in the modern as well as in the more old-fashioned American life, was the acting power in this regard was evident.

The southernmost of the schools I visited was the famous Gallaudet College, in the city of Washington, started on the initiative of Dr. E. M. Gallaudet, a son of the world-known founder of the first school for the deaf in America, but now supported by the central government. This school was founded in 1857 under modest conditions, but it has, under Dr. Gallaudet's eminently able leadership, developed into an institute of world-wide fame as the first school on the globe that imparts secondary instruction to the deaf.

By a report I had read of a German visitor to the place, I was led to think that the stock of knowledge the students got at that college was very modest. My personal impressions differ greatly therefrom. And when I now state as my opinion that this school

imparts a fairly good education to its students, I have at least the consciousness of having spent so much time in the different classes that it is not altogether erroneous.

There were about one hundred students spread over the different classes of the five years' course. To become a student it is necessary to pass an entrance examination, for which special preparation is indispensable for ordinary graduates of the schools for the deaf. Since 1887 female students have been admitted, and their number is increasing from year to year. The college maintains a good standard for the attainments in the different classes through annual examinations and the refusal to pass along, if the student is lacking, whether in capacity to follow the course or in the display of energy.

The aim the college has put forth is to bring the student to the same level of mental development as the hearing youth gets in an ordinary college. In several branches of science the ground covered in Gallaudet College is equal to or even surpasses what is reached in other colleges, but, on the other hand, Gallaudet College fails to bring its student up to the same mark in several other respects; for instance, the attainments in French and German were very modest, and if they have been taken as a basis for a judgment of the whole course I understand the disappointment of a visitor predisposed to find something remarkable.

Perhaps it is not out of place to add that the amount of learning exacted in colleges on the European continent as a rule is more extended than in similar schools in America. The persons and the government who have created this excellent school deserve the homage of every one interested in the education of the deaf. It is elevating to see the high development deaf people can be brought to, when intelligence and energy are working together and conditions allow it. At the same time, as I am full of admiration for the noble work this college is doing, it would be misleading not to mention what I think is lacking in the instruction. It is clear that a high percentage of the students are semi-mutes, and a good many among them were very able speakers and lip-readers when they entered, yet very little is done to keep up this accomplishment, not to speak of their further development. Several of the students told me their use of speech and lip-reading had retrograded in the college, which of course it is bound to do when they do not see other means or use other means of communication than the fingers, notwithstanding that a good many had lost hearing late in life. It is not necessary to be born a diviner to foresee that, in the future, reforms will be introduced to remedy this fault.

In close connection with the college is the Kendall School, that accommodated 60 to 70 pupils when I was there last year. Though I think some of the teachers very clever, the results of the instruction were, taken as a whole, not satisfactory—not up to date. The main interest in Washington must necessarily be the education of the adult deaf; this leads easily to some unconscious forgetting of the other activity, of course much against the will of the leader.

The activity in Washington is not limited to what I already have mentioned, but a normal class is connected with the school, where three or four normal students, or fellows, prepare themselves to become teachers of the deaf. The duration of the course is one year; both female and male students are admitted, daughters or sons of deaf parents having the preference. The theoretical part of the training is especially limited, and although the oral schools have got, and continually get, some teachers trained here, it appears to my mind that in such cases there must exist some misproportion between the need of an oral school and the training given the young teacher.

I don't wish to be unjust in my dealing with what I observed in Washington. Perhaps it would be too much to expect to see so great a task brought to perfection in one generation, essentially by one man's skill and energy. For Europe it is something of a disgrace that it was young America that first took up the problem to raise the education of the deaf to a higher standard half a century ago, without anything similar having yet been established in the "Old World," although we Europeans, at the bottom of our hearts, like to caress the thought that we are the only true banner-bearers of progress and culture.

This higher education has not only been a blessing to the comparatively small number of students who have attended Gallaudet College, at the present time about 1¼ students annually per million inhabitants of the whole country, but it has influenced the education of the deaf in all parts of the country and raised the general standard.

Every foreign student of the American school system for the deaf must come to the conclusion that this vigorous nation has left Europe behind in more than one respect. The very important question of trade teaching, simultaneously with the ordinary school instruction, which is discussed at the present day very eagerly in our professional press, has in many of the large American schools had a thoroughly good solution, whilst it will be a very hard problem for our smaller schools to solve satisfactorily. The term of instruction has continually been extended for the hearing child, and the tendency is still to further extension for an ever-increasing number of pupils. What is, then, more natural than that this movement will be carried over to our educational work for the deaf? And under an extended course no doubt the aim of the school for the deaf will be directed toward the creation of a more complete scheme for trade teaching. At present I shall not try to predict *when* the day will come when the now common eight years' course will be extended to ten years, but I am not for a moment in doubt that it will come. The Americans give already their deaf children an allowance of ten to twelve years' free instruction in an institution, and the students in Gallaudet College get an additional plus of five years!

I came home from America under the impression that we have every reason to be content with what we are able to accomplish in our schools of the deaf in eight years of a school course, partly

owing, no doubt, to our far better system of classification, but also convinced that much more can yet be done. The way ahead is still long before perfection is attained, both on our own hemisphere and on the other in the west, but they are nearer the goal than are we.

In concluding these only fragmentary notes of my impressions of what I observed in the American schools for the deaf, it would be incorrect not to mention two factors of importance for the furtherance of the cause on the American continent, viz., the two, in Europe, well-known periodicals, The American Annals and THE ASSOCIATION REVIEW, edited respectively by Dr. E. A. Fay and Prof. F. W. Booth, under the auspices the one of the "Convention of Principals" and the other of the "Association to Promote the Teaching of Speech."

One of the most useful activities for the benefit of the education of the deaf, and, chronologically, the keystone of the work done, is carried on by the Volta Bureau, in the city of Washington, established and endowed by Dr. Graham Bell, who, by his many generous actions in the furtherance of the education of the deaf, has won world-wide fame and the regard of all persons engaged in the instruction of the deaf. This Bureau, during the short period since its establishment, has accumulated an immense collection of literature, and the information which it has thus far collected, published, and distributed throughout the world serves greatly to inspire, guide, and encourage teachers in their efforts to achieve success.

The visit I paid to that institution, where I had the good fortune to make the personal acquaintance of its efficient superintendent, the Hon. John Hitz, remains one of the pleasant memories of my tour. When moving about from shelf to shelf in this treasury of knowledge, where so many fruits of human genius and energy, inspired by compassion for suffering fellow-beings, are gathered, you are deeply impressed with reverence for the pioneers of the *past* and respect for the persons who carry the burden and the heat of the *present*. In contemplating all these silent witnesses of human solidarity and indefatigable energy a living hope for the *future* arises that our beloved cause will continually find supporters, make progress, and prove a blessing to the deaf race.

REPORT ON A VISIT TO SOME OF THE AMERICAN SCHOOLS FOR THE DEAF.[1]

By W. H. Addison, Glasgow, Scotland.

[A year ago our American schools for the Deaf were favored with a visit of inspection by Mr. W. H. Addison, Headmaster of the Glasgow Institution for the Deaf, and Mr. F. G. Barnes, Headmaster of the Homerton, London, Residential School for the Deaf, traveling in company under the auspices of the Moseley Commission. In our last issue we gave liberal extracts from the report made by Mr. Barnes upon his observations and conclusions, and we now give below the report in full of his colleague, Mr. Addison. An educator of long experience and with broad knowledge of the work from observation and study of it in various countries, Mr. Addison commands attention in all that he says or writes, and his report, we feel sure, will have large interest for our readers.—Editor Review.]

I beg herewith to submit a report of observations made during a recent visit to some of the American Schools for the Deaf. The tour occupied seven weeks, of which five were spent on shore. Owing to the long distances of the schools from each other and the shortness of the time at my disposal, I judged it wise to confine my investigations entirely to the Eastern portion of the Continent, though I was informed that some of the Western States have made remarkable progress in education of recent years, and that some of the finest buildings and most progressive schools are to be found west of the Alleghany Mountains. It was with much regret therefore that I found myself obliged to decline the very kind invitations which I received to extend my journey to the West. Everywhere I did go I was received with the greatest kindness and cordiality, and I have to tender my warmest thanks to the many friends who combined to render the tour one of the pleasantest and most instructive it has ever been my lot to make.

The following is a list of the institutions and schools visited: New York, Institution for the Instruction of the Deaf and Dumb,

[1] From a "Report on a Visit to some American Schools for the Deaf. (Under the Auspices of the Moseley Commission). By W. H. Addison. 1907."

Fanwood, Institution for the Improved Instruction of the Deaf and Dumb, Lexington Avenue, and the Wright Oral School; Washington, Kendall School, and Gallaudet College; Philadelphia, Institution for the Deaf and Dumb, Mt. Airy, and Miss Garrett's Home for Little Deaf Children, Bala; Rochester, Western New York Institution for Deaf and Dumb; Belleville, Ontario, Ontario Institution for Deaf and Dumb; Boston, Mass., Horace Mann School for the Deaf, Sarah Fuller Home for Little Deaf Children, and New England Home for Aged and Infirmed Deaf Mutes; Northampton, Mass., Clarke School for the Deaf; Hartford, Conn., American School for the Deaf.

In addition to the above, I attended services for the Adult Deaf in New York, Philadelphia, and Boston, and had the privilege of speaking a word in season to the silent congregations of these cities in their own silent finger language. My reason for visiting these churches, apart from the interest I take in the moral and religious welfare of the Deaf, was to obtain opportunities of meeting the adult deaf out of school, so as to check my opinion of the work of the school-room by the results in the after life of the pupils. It was a great pleasure to meet so many intelligent deaf men and women, and the happy, contented, and prosperous appearance of the majority spoke well for the education and training they had received in the schools.

General Impressions.—The most abiding impression which I brought back with me was that of the enormous material resources which are being lavished on every branch of education, and of which the deaf as a class are receiving a full share. In the equipment of her schools for the deaf America far surpasses Great Britain. The care and instruction of the deaf seems everywhere to be regarded as one of the first duties of the State. In most of the States a State school is usually provided in a central locality, at which every deaf child under the age of 21 can claim education, combined with maintenance, *as a right*. In a few of the States the schools are managed by private corporations as in this country, but the laws under which they work are most liberal, and the grants which they receive per capita are calculated on a scale which to us seems lavish. The grant per head is never less than £50—£60 is paid by New York State, and even this large sum is, I believe, exceeded in the case of at least one school.

Nor does this liberal treatment by the State check the flow of private benevolence. Large donations towards the funds of insti-

tutions are often made by private citizens. The magnificent trade school of the Philadelphia Institution was the gift of one of the directors; the Clarke School, at Northampton, was founded and endowed by the gentleman whose name it bears; the New York Institution is so wealthy, at least in the eyes of a poor Scot, that the Principal scarcely knows how to find an outlet for the accumulated wealth of the trust. Many of the most prominent citizens of the Republic give freely of their personal services, as well as of their means. The interest taken in the blind deaf by their enthusiastic friend, William Wade, the personal services and generous gifts of Graham Bell, are well known to teachers all the world over; but the interest of many others, who are not perhaps quite so famous as these two gentlemen, is no less keen and constant. One of the directors of the institution at Philadelphia has gone to the trouble of compiling a Book of English Historical Sketches of a most interesting kind, specially for the use of the pupils. The American School at Hartford possesses a fund devoted entirely to the publication of Special Lesson Books, and the utility of such a fund will be appreciated by teachers when we say that Miss Sweet's well-known and highly prized readers have been made available to the Deaf by this means.

Though the education of the Deaf is not compulsory in America as it is in this country, the American people generally seem more fully alive to the value of education than are the people of Great Britain. This desire manifests itself in many ways. Boys and girls think it no shame to take any kind of situation during the summer, provided it will bring in a sufficient number of dollars to enable them to take a college course during the winter. Many seek occupations as farm help, others go out as waiters in steamboats or seaside hotels, while in one city I visited my boots were blacked by a student from Mr. Moody's Bible Training College at Chicago. This desire for a good education on the part of poor students reminded me of the spirit which animated the Scottish people before the advent of factory-made cities had begun to sap the national ideals.

One result of this keen desire for education and of the esteem in which the dispensers of it are held is that the teachers of the Deaf are much better paid than are the teachers of the Deaf in this country. Salaries, as a rule, are at least double the rate that has obtained in this country in the past, and, in addition, the teachers in the residential institutions are not burdened with the out-of-school duties which they so often have to perform in this country. Teachers are engaged as teachers, not as supervisors. Five hours' hard work in school—and it is real hard work that is expected of them—plus the proper and careful preparation of lessons and the correction of the pupils' exercises, is considered an adequate day's work, and the domestic supervision is entrusted to its rightful department—the domestic staff. For this reason a good class of teachers, highly educated, sympathetic, and full of enthusiasm is generally to be found in the American institutions.

Another advantage which the American schools can claim is that their pupils stay longer at school than they do here. A ten or twelve years' course is common, and in one State at least a seventeen years' course is possible, and entirely free of charge to the parent. It is therefore a common sight to see youths and maidens of 20 or 21 years of age attending school, studying hard the one half of the day and learning their trade the other half. It follows, as a matter of course, that the attainments of such pupils must be higher than those of our own scholars who leave school at sixteen or, as was the case not so long ago, at fourteen. The provision for trade teaching to such pupils in all the large institutions is excellent, and the graduates on leaving school step at once into the wage-earning class and become useful members of society. There appears, however, a tendency to lower the age at which the children are admitted to the school, with a corresponding tendency to lower the age at which they leave school. Whether this will be a beneficial change time alone can show.

A few notes regarding each school visited are given below. They are not intended to be exhaustive, but are written chiefly with the view of indicating the distinctive features of each school visited.

The New York Institution at Fanwood.

This institution is located in a commanding situation on Washington Heights, overlooking the Hudson River. The number of pupils is about 450, and the method of instruction is officially described as combined or eclectic. The school is graded on the departmental plan, being divided into a kindergarten, primary, intermediate, and advanced section, each section in charge of a principal teacher, who is responsible to the superintendent. The pupils, however, are all, or nearly all, housed in one huge building, a plan which may have excellencies, but also has very considerable drawbacks. In the teaching of language Miss Barry's Five Slate Method is much used, as it is in many of the American schools, where it is found exceedingly advantageous in helping the pupils to classify the parts of a sentence. The medium of communication is chiefly Manual Alphabet (single hand). Signs (natural and conventional) are used largely for explanatory purposes and for chapel and collective exercises. Instruction in speech and lip-reading is given to selected pupils. There are several Blind-Deaf pupils in the institution who are well cared for, and the facility with which they can receive and give back ideas by means of the finger alphabet, and the progress they have made in their studies, is remarkable and reflects great credit on their instructors. The provision for the teaching of trades is very complete and comprises joinery, printing, sign-writing, and horticulture. The printing shop especially, under the charge of a very intelligent deaf man, is highly successful. A special feature of this school is military drill. All the pupils, and also the officers from the principal downwards, wear a neat uniform, and the whole institution is worked

as a military school, even to the length of maintaining a drum and fife band. It seems strange to hear of the "Star Spangled Banner" being played by a band of Deaf Mutes, but that was our experience. The explanation of this phenomenon is that amongst this large number of pupils there are many who are only partially deaf, and the principal has hit upon this expedient, combined with acoustic or ear-training exercises, for rousing the dormant sense and rendering it more sensitive to sounds. There is no doubt but that in many cases benefit has accrued from this treatment. The military organization is also of value in helping to implant the idea of American citizenship into the minds of the people of all nations who are being dumped down into New York by the Trans-Atlantic ferries. The saluting of the flag at commencement and close of school is an institution which might well be copied by the schools of this country.

New York Institution for the Improved Instruction of Deaf Mutes.

This institution is situated on Lexington avenue, in the center of the city. The number of pupils is about 200, and the method of instruction is oral. As far as the situation and circumstances of the school allow, the work here is very thorough and good. The departmental system of grading obtains as in the institution referred to above. Geography is taught largely by means of imaginary voyages. Arithmetic is in the charge of one teacher, who devotes all her time to the subject and is consequently an expert. The manual work is based on educational lines, not on trade teaching. The woodwork teacher, a very intelligent man, does not insist on a very high finish, especially in the junior classes. He says that in the present state of the American labor market it pays better to train the pupils in adaptability and readiness to cope with emergencies in a rough and ready fashion. In the cookery room the girls are taught to prepare a full meal for themselves, to lay out the table properly, and to take turns in serving. If the dish is badly cooked, they suffer the discipline of consequences by having to eat it. On the other hand, if it is a success, the enjoyment of it is a full reward. The gymnasium is in charge of an expert, who keeps a register of the physical development of the pupils.

The Wright Oral School.

This is a private school for the children of the well-to-do classes. The system is oral, with acoustic training where it seems desirable. Everything that ingenuity can suggest and wealth purchase seems to be done here.

Gallaudet College and Kendall School, Washington, D. C.

The Kendall School is a small one of about 40 to 50 children belonging to the District of Columbia. The system of instruction is combined, and several of the teachers are deaf. The quality of the

pupils' intelligence seemed rather poor, with the exception of the top class—a class composed of young men and women drawn from far and near, with the object of preparing themselves for the entrance examination of the college. This class exhibited a high type of intelligence.

The outstanding object of interest at Kendall Green is, however, the Gallaudet College, to which the Kendall School is a mere adjunct. This college, so called in honor of Thomas Hopkins Gallaudet, the Pioneer Instructor of the Deaf in America, represents the life-work of the elder Gallaudet's younger son, the well-known and highly esteemed Dr. Edward Miner Gallaudet. The object of this college is to place within reach of the more intelligent Deaf Mutes, a collegiate education of a character approximating to the standard of the best colleges for the hearing. The full college course, admittance to which is gained by an entrance examination, embraces English, Latin, Greek (optional), French, German, logic, natural science (botany, zoölogy, chemistry, physiology, physics), mental and moral science, gymnastics, etc. The courses of study are carefully graded, so as to lead on the students step by step to higher and higher planes of thought. The medium of communication employed is the finger alphabet and signs, but provision is made for instruction in speech and lip-reading for those who desire it. In some of the classes the professor speaks and spells simultaneously and with great facility, and the pupils seem able to take in the sense of both equally well. Two days were spent in this interesting establishment, and most of the classes were seen at work. The results generally, in my opinion, were good. A class in German, conducted by Dr. E. A. Fay, struck me particularly as affording excellent testimony to the ability of deaf mutes to undertake this higher educational work. Coming fresh to the study of this difficult language less than six months previously, they had made such excellent progress that they were able to render into very passable German fairly difficult English sentences spelled out on the fingers of their instructor. It is doubtful if any class of hearing students have exhibited better results in the time. In a class-room adjoining, a class of eight girls were busily engaged translating an extract from one of Cicero's Orations into English. They seemed quite at home in the work, and, in the grammatical drill which followed this, they exhibited equal proficiency. Other classes seen at work were engaged in studying physics, Mediaeval history, chemistry, English composition and literature, algebra, in all which subjects much good work was being done. If one might venture to offer any criticism of the work of this most admirable and unique institution, it would take the form of suggesting that the provision for oral teaching might be extended and made more thorough and systematic. This seemed to be the weak spot in what is otherwise a thoroughly equipped college for the higher education of the deaf—a college reflecting equal credit on its founder and principal and on the American Government, which has so liberally endowed and supported it.

THE PENNSYLVANIA INSTITUTION FOR THE DEAF, MT. AIRY, PHILADELPHIA.

This is the most magnificent institution it has ever been my lot to visit. The number of pupils exceeds five hundred, who are housed in three large buildings, entirely separate the one from the other, each in charge of a principal, who superintends the educational work, and a matron, who has charge of the domestic department, the whole responsible to Dr. Crouter, the general superintendent. The buildings, in addition to those above enumerated, comprise a splendidly fitted trade school, a hospital, gymnasium, etc., the whole situated in a park of some 40 to 60 acres, in a pleasant suburb of Philadelphia. The buildings, having been erected little more than a decade ago, are, of course, fitted up in the best modern style. They were planned under the supervision of the present principal, Dr. Crouter himself, and every device that an experienced teacher and superintendent could suggest seems to have been included in the arrangements by the architect. A special note should be made of the fact that all the rooms are very large, lofty, and well lighted, the peculiar arrangement of the buildings being such that light is admitted to most of the school-rooms from two and three sides.

The method of instruction is almost entirely oral, only about 6 per cent of the pupils being relegated to the silent department. The manual alphabet is rigidly excluded from the school-rooms, and no gestures or signs are tolerated except such as are made naturally and easily understood by hearing people. All the instruction is given by and through speech, except in the case of the few pupils who, from physical or mental weakness, are not considered suitable for this mode of teaching. The methods used for awakening the dormant intelligence of the pupils, for training them to articulate and read the lips, and for developing their language are all excellent. The organization of the school is a model of completeness and suitability of means to end. The pupils first enter the primary department, where they receive a thorough grounding in articulation and lip-reading, and the elements of language. The course lasts three years. They are then transferred to the intermediate department, where they spend another three years of their school life. Here the elemental language forms and the vocabulary already acquired are enlarged, codified, and made permanent. In the advanced department the pupils, who may now be said to have acquired the elementary grounding in the mother tongue, receive instruction in such subjects as geography, history, etc., in the same way as they would if they were hearing children attending the ordinary elementary school, the only difference being that progress is somewhat slower, and more repetition and explanation has to be resorted to. It is to be noticed that in this upper department the teachers teach subjects rather than classes—*i. e.*, one teacher takes the whole of the classes in geography, another history, a third arithmetic, and so on. This plan is found to work extremely well, the teachers being spe-

cialists in their subject, know it better than the average teacher of all subjects can be expected to do, and the plan has the added advantage that the pupils get practice in reading the lips of more than one teacher.

It would be too great a task to describe in detail all that was seen during our six days' stay in this interesting establishment.

One more interesting fact must, however, be recorded—the case of a deaf teacher successfully conducting an oral class—a unique instance one would imagine, but one which it is to be hoped will be imitated by many other ambitious deaf men and women.

In concluding this too brief notice of this well-managed and well-conducted institution, mention may be made of the fact that the chapel and collective exercises are all conducted orally. I was asked to give a short address to the pupils, which I did, speaking as naturally as possible under the circumstances. The pupils seemed to follow with interest, but it may be permitted to doubt whether all really comprehended what was being said to them. In any case, the strain on their eyesight must be very great, and, speaking for myself, and with no wish to minimize the value of the great work that is being done, I still think the manual alphabet would be a useful adjunct in such a case.

Miss Garrett's Home for Little Deaf Children, Bala.

I spent the concluding day of my stay at Philadelphia in visiting this interesting establishment. The Home was founded by two sisters, Misses Garrett, and is still carried on by the survivor. The fundamental idea underlying this effort is that if you begin talking to your deaf child young enough, he will learn to speak and read the lips as naturally through the eye as a hearing child does through the ear. The proper place for the deaf child to learn this is at home, but as the parents of the deaf children have, as a rule, neither the time nor the knowledge necessary to impart this instruction to their offspring, Miss Garrett has hit upon the expedient of taking the children at as early an age as she can get them and training them by skilled teachers in small homes, approximately as nearly as can be to the homes from which such children come. Miss Garrett maintains that if deaf children are put under training young enough and talked to constantly, they will be able by the time they are ten or twelve years of age to go to the school for hearing children and take their places along with their hearing brothers and sisters. Her "Homes" consist of two houses located at Bala, a suburb of Philadelphia. Here she has collected some 60 children of ages ranging from 2 to 12. Her success in getting her pupils to talk is considerable, but it is open to grave doubt whether the system is suitable for more than a very small minority of the Deaf. That some of the more highly gifted ones may be able to take their places in a school for the hearing, after receiving such training as is given here, I do not doubt; but I do doubt the wisdom of reasoning from the few

to the many, and I am of opinion that special teaching in special schools must still remain a necessity of the case for the great majority of deaf children.

Western New York Institution for the Deaf and Dumb, Rochester.

This institution is conducted on a method differing from those previously visited. Signs or gestures are rigidly excluded, and the pupils are talked to from the day they commence school by means of the finger alphabet (single hand). At the same time oral work is commenced, and all the pupils are taught to speak. The method is therefore termed oro-manual. The principal (Dr. Westerfelt) prides himself on the rapidity of his finger-spelling, and he claims that by his method the pupils learn to understand and to use the language of their country in the natural way, with ease and fluency. The result is certainly remarkable. The pupils do use English and they do not use signs, and, as far as it was possible to judge during the short stay made, there is much to be said in favor of this method. The institution is divided into two parts, a kindergarten and an advanced department. There is an excellent library and reading-room attached to the school, and the pupils seem to make a very good use of it. The pupils are allowed to read at meals, and many of them were found reading standard authors with evident zest and enjoyment. It has to be remembered that they are much older than the pupils of our British institutions. The pupils assemble for an hour-and-a-half's evening study in the dining-hall. At meals the boys and girls sit together at the same table, each table being in charge of an elder boy and girl—the girl at one end of the table and the boy at the other. The principal thinks that this arrangement works well and produces no evil results. Another arrangement at this institution which is uncommon is that of the pupils taking their places in the dining-hall every morning at twenty minutes to seven for Bible study—breakfast being served at seven. In this and other ways, though the school is large, a family atmosphere is engendered which helps to break down the cast-iron discipline which exists in many large institutions.

Institution for the Deaf and Dumb, Belleville, Ontario.

This was the only Canadian institution I was able to visit. It is situated in a charming place on the beautiful Bay of Quinte, and is attended by over 200 pupils. The system of instruction is nominally combined, but little real oral work has been done. The classes are too large and the grading of the pupils not quite so thorough as it might be. A new superintendent has been appointed recently, a medical man, who has no previous experience of the work of educating the deaf. He is, however, an able man, full of sympathy for the teachers and pupils, and there is evidence that under his supervision much more oral work will be attempted in the future.

The school course at present allowed by the Government, seven years, is too short and should be lengthened if a really satisfactory result is to be achieved. Much good work has been done by individual teachers, but, with a larger staff, an extended course, and a unification of effort, the results should be much better.

Horace Mann School for the Deaf, Boston.

This is a day school and is carried on as part of the Public School System of Boston. The number of pupils is 145. As many of the pupils have to travel a considerable distance, they generally bring lunch with them, but there is a kitchen in the school building where those pupils who wish it can get lunch for 5 cents or a cup of chocolate for 2 cents.

The method of instruction is oral, and the principal, Miss Fuller, aims at preparing the pupils to attain the standard of work which is reached in the schools for hearing children. The compulsory age of attendance begins at five years, but this law is not altogether strictly enforced with the deaf. Miss Fuller is of opinion that an average deaf child who begins school at five will be about 3 years behind the normal hearing child in attainments when he leaves school. The school is well planned, the curriculum well graded, and the staff capable and ample. A feature worthy of imitation is the employment of a special teacher of speech, whose duty it is to give special drill in this branch, supplementary to the work done by the regular class teacher. For helping the intonation of the pupils, a piano is used, the pupils placing their hands on the frame while a tune is being played. This exercise seems to give pleasure to many of the pupils, especially the semi-deaf, whose lethargic faculties are considerably aroused thereby. The special teacher also makes use of a variety of ingenious devices for improving the articulation of the pupils. One of the drawbacks to success in this school is irregularity of attendance, due to the distance the pupils have to travel daily. On the day of my visit, out of a class of eight first year's pupils, four were absent owing to the weather conditions. This is, of course, one of the disadvantages of the day-school system. The manual training scheme of this school is entirely based on educational lines and is very thorough. Trades, as such, are not taught. A very useful adjunct to the school, though not officially connected with it, is the Home for Little Children at West Medford, a suburb of Boston. Here children under five are received and given an excellent kindergarten training under ideal conditions. As a preparation for the special school, this training is indeed excellent and much to be commended.

Clarke School for the Deaf, Northampton, Mass.; Principal, Miss Yale.

This is the model oral school of America, if not of the world. It consists of about 150 pupils who reside in halls, named respectively

Dudley, Baker, Rogers, and Clarke Hall, all situated on the top of Round Hill, in the suburbs of Northampton, in the midst of Sylvan scenery so attractive that it was formerly the chosen home of the celebrated Swedish songstress, Jenny Lind. There are not more than fifty pupils in each home, and the life they lead is made to approximate as closely to the family ideal as possible. The principal, the teachers, and the pupils all take their meals together, and the practice of speech is inculcated therefore both in school and out. As at Rochester, the pupils are allowed to bring books or papers to the table, and the principal thinks the practice has been beneficial, though it contravenes the canons of good behavior as generally received.

The school is divided into three departments, as at Philadelphia, and the scheme of work pursued is very similar to that of the larger institution. The first class seen was one of babies under five. It numbered nine in all, of varying nationalities, and had only been half a year under instruction. The children had already learned to speak and lip-read the names of a considerable number of objects, etc. The school hours of this class are 9 to 11 and 1.30 to 3. The next class, 10 in number, had been 5½ months in the class, but four of them had spent some time in the babies' class of the preceding year. Their vocabulary, all spoken, of course, extended to about 400 words. There is no set program, words being given to the things which interest the children as they arise, but the words learned are afterwards classified, and at the end of the session a review of the year's work is hektographed and a copy given to each pupil to take home. This practice is pursued all through the school course and proves very useful.

The sentence forms learned in this class are chiefly cast in the past tense, which is the first tense taught. For developing the idea of past, present, and future, calendar work is much relied on, and certainly gives precision to the pupils' knowledge of such terms as today, tomorrow, yesterday, etc.

Note may here be made that the style of writing taught in this school is semi-vertical and came as a welcome relief after witnessing so much poor writing, due to the back-handed effects of the vertical style commonly taught. The writing generally in the American schools was poor, often almost illegible and difficult to read.

In the second year's class of this department an illustration of the method of story telling was shown. The story chosen, a simple one, suited to the stage of development of the class, was told orally. The children were then required to produce it in writing, or to recite orally, what they could remember of it, after which they were questioned upon it. This plan of story-telling is also followed in the higher classes—the length of the story and the difficulty of the language being gradually increased. A variation of the method of presenting it to the children is to write it on a cardboard with a rubber pen. The card is hung up in front of the class for a short time—two, three, or five minutes—during which they silently peruse

it. Then the card is covered and the pupils questioned on what they have read. As a training in concentrating attention and strengthening word memory, this plan has many merits.

The first class seen in the intermediate department (third school year) was occupied with a geography lesson. The method followed is to begin by making a plan of the class-room, then of the school generally, the grounds, the city, the district, and so on to the county, province, and country, the pupils building up their own maps. Picture post cards and the famous Perry pictures are much used for illustrating points outwith the pupils' ken. At the end of the session a copy of the ground covered is given to every pupil, and so the teacher of the following year knows exactly what has been done in the preceding year and what the pupils should be expected to know.

The action work in this stage comprises drill in such sentences as "Miss Dash shook hands with Mary and asked her how she felt, and Mary told her that she was all right." "Miss Dash looked out of the window and asked us what we thought we saw," etc. The action is done, described orally by the child, with help from the teacher when necessary, then written out. Drill on the active and passive form of the verb is also given at this stage (fourth school year); the sentences all based on action work.

As affording material for nature study, a white rat, two turtles, gold fish, a canary, some cocoons, and boxes of seeds germinating are kept in this room.

The top class in this department (fifth school year) was seen engaged in what is called a word-finding competition. A newspaper called "Current Events" is taken; out of it 20 names of places mentioned in it are selected by the teacher and dictated to the pupils, who are required, as part of their evening study, to find out all they can about them (this presupposes free access to a well-equipped library). Next day the teacher questions the pupils on the result of their researches. In addition to the value of this practice in accustoming the pupils to search for information for themselves, it is the means of enabling them to accumulate a mass of information on all kinds of topics.

In the teaching of History, which is begun here, the method is to make use of birthdays: Washington's birthday, Lincoln's birthday being made the occasion on which to present the story of Washington or of Lincoln. As the stories grow in number, they are regulated to their place in chronology by means of a century table, thus:

1700.	1800.
Washington.	Lincoln.

In arithmetic the four processes in money, weights, and measures are mastered.

In the grammar or highest department was seen the finished product of the school. The arithmetic class was doing algebraic problems, involving equations such as "Six times a certain number diminished by 3 times itself equals 63. What is the number?"

A class in English literature (numbering 3 only) was studying "Paradise Lost." They gave a Résumé of English History from Cæsar to the Revolution by word of mouth as rapidly as any hearing class could do. The first class in history was studying the "French Revolution" out of a text-book of some 700 pages, the particular lesson on which they were engaged at the time of my visit being the "States General." They manifested an interest and knowledge in political questions which would do credit to any hearing scholars.

The manual training work at this school is chiefly confined to Sloyd woodwork and carpentry. The Sloyd classes are taught by a lady, but the carpentry is taught by a man (almost the only male admitted into this Adamless Eden). A feature of the work in the carpenter's shop which is worth noting is that the big boys are allowed, in the second half of the term, to make things for their own use or to take home with them as presents to their relatives.

There is an excellent gymnasium, a separate building, the teacher of gymnastics both to boys and girls being a lady. The girls excel in the game of basket-ball, and gave a team of hearing girls a sound drubbing on the day of my visit.

A number of students are trained at this establishment for the work of teaching of the deaf. The course is systematic and thorough, and the estimation in which the Clarke trained oral teachers are held in the schools of America proves its value. In fact, the organization and tone of the whole school is such that residence in it is a stimulus and an inspiration, and though the cost per head is large (about £70 or over), yet in a country where dollars are plentiful, the result is well worth the money expended. In situation, in organization, in all that makes for the healthy development of the deaf child, this institution comes as near to ideal conditions as it is possible for any human institution to approach.

The American School for the Deaf, Hartford, Conn.

Principal, Dr. Job Williams. Number of pupils, about 170. This institution possesses a special interest in that it is the first public school for the deaf which was opened in America. Its original title, "The American Asylum" for the Deaf and Dumb, suggests some curious reflections. The idea that deaf mutes are little better than lunatics and need the care of an "asylum" is not yet quite banished from the popular mind. On the other hand, the promoters of this enterprise seem to have had little faith in the future of their country if they thought, as the title seems to indicate, that one institution

would suffice for the American continent. Needless to say there have been many startling developments since they opened, with fear and trembling, their little school of 7 pupils in 1817; and great, no doubt, would be their astonishment could they revisit this mortal sphere and see how great a tree their little sapling has grown.

The first principal of this school was, as every one knows, the Rev. T. H. Gallaudet—a man of liberal education, broad culture, and rare tact. He laid the foundations of what has often been called the American Combined System of Instruction, a system of which his no less distinguished son, Dr. E. M. Gallaudet, is today the eloquent exponent. Many modifications, however, have been made from time to time, and it is not easy now to find what is really the American system, so varied and so diverse are the methods employed in the various schools. The old order changeth, giving place to the new, in deaf-mute education, as in all mundane affairs.

The method introduced into America by the elder Gallaudet was the French system of de l'Epée and Sicard. "The process used in teaching language on this method was a very cumbersome one. The idea to be turned into language was first given by natural signs, next in word-signs in the order of the words, and, lastly, by signs in the order of the words, each word being accompanied by other signs indicating the parts of speech and giving its grammatical construction. After all this preparation came the written language for the idea." The end sought was to lay up knowledge in the sign language rather than to master the language of the country. The justification for this course of procedure lay in the fact that in those days many of the pupils were allowed to stay only two years at school, and four were thought by many a pretty considerable time for completing their education.

America has traveled far since then, and the American "Asylum" has traveled also. "Massachusetts now allows ten years' schooling to every one of her deaf children, and gives power to the governor to extend the time beyond that limit in the case of meritorious pupils." This rule holds also in most of the New England States. The "asylum" has become a "school," and the method, though still combined or eclectic, now places the teaching of writing, speech, lip-reading, and manual spelling in the forefront, and relegates signs and the sign-language to a subsidiary place. The school at Hartford now consists of two departments—a primary, housed in a separate building, which is practically an oral school, and an advanced department, located in the old Asylum building, where the method pursued is in reality the sign and manual method, plus a certain amount of oral teaching. The work in the oral school follows closely the lines common to all such schools and calls for no particular comment. The result varies with the aptitude of the pupil and the skill and enthusiasm of the teacher. In the advanced department some very advanced work is done. A seventh-year class of nine pupils, of ages averaging from 13 to 15, had completed the study of Montgomery's U. S. History, had begun English history, and were

studying Fryes' Grammar School Geography and Nicol's No. 4 Arithmetic. The teacher of this class has an ingenious plan for stimulating activity. She keeps a number of interesting books on her desk and allows the pupils who finish their work ahead of the rest to take a book and read. The privilege is highly valued and proves a good stimulant.

In the next highest class the subjects of study are Jenkins' Words and Phrases (an admirable collection of idioms and sentences); English and American Literature Primer; Collier's Junior English History; Nicol's Arithmetic, Book 5; Thirty Poems.

The highest class, under Dr. Fay, was taking a course of English literature, a course in physiology, and Jenkins' Words and Phrases. This class wrote out for me, in very creditable English, an address which I had made the previous day and which had been "signed" to them by one of the teachers. As it is a matter of some dispute amongst teachers as to how far the deaf understand a discourse which is delivered to them by signs alone, I take this opportunity of saying that the test thus given proved conclusively that the deaf do follow the meaning of what is said to them by signs. The reproduction of my address in written English by this class was quite as good as would have been, say, the report of a Sunday's sermon by an average hearing congregation.

There is a well-equipped trades building attached to this institution. The sewing class for the girls is in charge of a deaf woman, who reads the lips very well. The Sloyd work is taught by a woman teacher; but the cabinet shop is in charge of a man, a skilled artisan, under whose care the pupils turn out some excellent specimens of the cabinet-maker's art.

I have already referred to the many excellent special text-books which have been issued from this school, copies of which were generously given me by the venerable principal. Chief amongst them are Miss Sweet's "Lessons in English," which are extensively used in America and which deserve to be introduced into this country. Though they contain certain Americanisms which are not quite agreeable to British ears, yet, till we are in a position to print special reading-books of our own, Miss Sweet's lessons would undoubtedly be useful to the class teacher, who finds in the ordinary Standard Readers idioms much too involved for the elementary stages of a school for the deaf.

It is one of the glories of the Hartford School that the quality of its teachers has ever been of a high order. "Twenty-nine graduates of Yale College, besides graduates of other colleges, have been enrolled in its corps of instructors." As one of its reports justly claims: "The high standard set for the country at the beginning, and the endeavor to live up to it, have secured results in the education of deaf mutes which have caused American schools for the deaf to be universally acknowledged to be the best of their kind in the world." That this is no idle boast the records of the past and the quality of the instruction given throughout America today abundantly proves.

Conclusion.

My visitation of the American schools terminated here, and, perhaps, it would be wiser if my remarks also were to end. But I feel that my fellow-teachers and others have a right to know exactly what are the conclusions that I have arrived at on certain controverted points. In stating my opinions I lay no claim to infallibility. I only ask those who may disagree with me, or whose mode of procedure I seem to criticise, to believe that mine are honest opinions, frankly expressed, with no thought but of sympathy and admiration for the noble work which is being done all over America, as opportunity offers, by an army of skilled and enthusiastic teachers—men and women whose very enthusiasm it is which occasionally carries them into what appears to a dispassionate observer as extravagance of statement, and sets them into conflict with one another.

The deaf of America have had in the past, and have at the present day, much better opportunities of obtaining a good education than have the deaf of our own country. The parent of a deaf child there can claim education and maintenance of his child *as a right*, and that without any haggling with the school board as to whether he shall pay 6d. or 1/- per week for his son's bread and cheese.

The school period is longer, the pupils remain at school till a more mature age, and the schools are better staffed and better equipped than our own. As a consequence, the finished product excels that of our schools in knowledge and culture, though there is this to be said, *per contra*, that in ability to use the mother tongue for the ordinary purposes of life there are numbers of deaf mutes in this country who can equal anything that the American schools have produced. Moreover, since the passing of the Blind and Deaf Act, which has made the education of the deaf compulsory in Great Britain, it is well known that we have progressed very greatly, and, as far as I am competent to judge, the work of our best schools now compares not unfavorably, year for year, with the majority of the American ones. But the longer school period, and the greater age to which so many remain at school in America, and, above all, the stimulating influence of Gallaudet College, all combine to enable the *elite* of the American deaf to undertake studies which our deaf mutes in this country scarcely yet dream of.

With regard to systems or methods of instruction, I have to say that the more I see, and the wider my experience, the more I become convinced that it is the teacher who makes the success of a method, and that it is not the dry bones of a method that makes the teacher.

During my tour I saw good work being done on the oral method, on the sign and manual method, on the combined method. I met ex-pupils who had been taught by each and every method, and I found failures and successes alike common to each. If the teacher is skilful and enthusiastic and has good material to work on, he gets good results, whether he is an oralist or not. But certain definite

principles seem to emerge from what was seen and heard, and these may be briefly and concisely stated.

It is generally conceded now that every deaf child should, as far as possible, learn to speak. There are, it is true, stout opponents of this theory—men who believe and say that the indistinct, harsh, and raucous utterance of many deaf people who have been taught orally is useless, and that such would do better to keep an eternal silence, and trust for the expression of their ideas to the nimble fingers or the ready note-book. For this latter view I think there is something to be said. Extensive commingling and communing with the adult deaf and dumb has given me considerable insight into their feelings and opinions on this matter, and I think they should have some weight.

But it has also to be admitted by any candid observer that there are many deaf mutes who can be taught, and well taught, by and through speech, and for whom therefore an oral method is to be preferred. My observations have convinced me that if it is desired to educate a child well on this method, he must live in an oral atmosphere and no pains must be spared to get him to use his voice the livelong day. The teaching of speech as an accomplishment is, I think, a mistake, at least from the oral point of view, and leads in the end to the complete overpowering of the speech method by the more facile and easy manual method. It follows, therefore, that, in my judgment, wherever possible, a dual system should obtain, if full justice is to be done to both methods and to all the deaf. Every school of sufficient size to admit of classification should have two departments—an oral, where the "atmosphere" should be one of speech, and a silent, where finger spelling should take the place of speech. Circumstances, such as scarcity of means, may prevent this being done in the schools of our country at present, but that some such arrangement will be the ultimate outcome of the war of systems I have not the least doubt.

A COMMUNICATION.

BEINN BHREAGH, NEAR BADDECK, NOVA SCOTIA,
December 16, 1907.

To the Editor of the Association Review:

DEAR SIR: I take issue with Mr. Weston Jenkins' statement, as copied in your December issue from the Messenger, that—

"Dr. Crouter has had his share of mere luck, too." . . . For . . . "he did not select his superior officers, the members of the Board of Directors. . . . At Mt. Airy, on the contrary, you find one Director erecting a costly building for the school at his own expense, another contributing to the school paper, for the pleasure and profit of the pupils, a series of interesting studies of English History illustrated with rare cuts from his private library. And all of them giving their time and thought freely to the school with no thought but the benefit of the pupils. This is sheer good luck to the school and to Dr. Crouter, and he deserves no bit of credit therefor—except so far as their generosity has been encouraged by the spectacle of his own untiring and skillful work."

I cannot agree with Mr. Jenkins that this is "mere luck." On the contrary, I think the "generosity" of the Directors goes pretty nearly as much to Dr. Crouter's personal "credit" as the "good work" of the teachers.

There is nothing so stimulating to interest, and, therefore, to generosity, as the spectacle of a man genuinely interested in his work and successful in executing it, and nothing so discouraging as meeting lack of care and of executive ability in the responsible head of an institution in which one has some concern as Director or member of the Board of Managers. I doubt exceedingly whether one Director would have erected the costly building or another contributed the studies of English History from his own library but for the confidence Dr. Crouter has inspired in them that the building and the series would be wisely used and made of great benefit to the students. And I feel sure that "all of them give their time and thought freely to the school" from the enthusiasm inspired in them by Dr. Crouter's own enthusiasm and devotion. Consequently, it does not seem to me that it is "sheer good luck" that Dr. Crouter has such an efficient Board of Managers behind him; but, on the contrary, that Dr. Crouter does deserve at least a very great share of credit therefor. Yours truly,

MABEL G. BELL.

THE CHEFOO SCHOOL FOR THE DEAF AND ITS FUTURE.

SCHOOL FOR THE DEAF, CHEFOO, CHINA,
December 7, 1907.

MR. FRANK W. BOOTH,
Editor of the Association Review.

DEAR MR. BOOTH: I have asked Dr. Brown, of the Presbyterian Mission Board, to forward to you the copy of the paper prepared for the Executive Committee of the Educational Association of China, in regard to the School for the Deaf here in Chefoo.

This Committee, which has its headquarters in Shanghai, is gathering information for the use of the Committee of the Laymen's Movement to Promote Christian Education in China. You may know something of this movement in America, in which some of our wealthiest men are interested.

I sent the copy of the paper to Dr. Brown simply to keep the Board in touch with what we are doing here, and he is to send it on to you.

At the Centenary Missionary Conference held last April in Shanghai there were several visiting delegates who represented the Laymen's Movement; some of whom I had the pleasure of meeting. A number of them saw the class of deaf boys which I had with me and which did daily demonstration work in the Presbyterian Chapel near the Y. M. C. A. building, where the Conference meetings were held. Later, Mr. Louis H. Severance, of Cleveland, visited Chefoo, and, although it was holiday time, I called together the pupils who were remaining with us during the summer and he was much interested in seeing what they had accomplished. It was his pleasure to remember us with a gift; but I met in him, what I meet in so many and which is so baffling, the strong feeling that the work is not on a permanent basis. We have no Board, except the one which simply holds the property in trust, but is not responsible for the finances nor the continuity of the work; hence, we cannot expect large gifts and must work facing the inevitable outcome of failure for lack of supporters. Mr. Severance quoted the history of the McCall Mission in Paris as an example. I need hardly add to

his opinion the fact that I, myself, feel the burden of uncertain support a very heavy one, and I have often wondered if the struggle I am making is worth the while. One hour in the school-rooms, though, watching the development of minds, which but for this school would be left in worse than heathen darkness, arouses my determination to hold on, no matter what the cost.

To secure a more adequate and certain support and the continuity of the work are things to which we must give some attention.

It is this which has led us to ask for an endowment. We have proved our right to live as an institution by the degree of success attained under difficulties, and it seems that the time has come when we should make a strong effort toward something more permanent.

The paper will give you, and the readers of the ASSOCIATION REVIEW, some idea of what we have accomplished in getting together property for the use of the school and should be an encouragement to do more.

The Committee to whom the paper was sent did not intend to include any but secondary schools, but gave us the advantage as a recognition of the worth and need of the work. I am rather pessimistic as to any advantage, *unless* it is taken up by interested people at home and pushed from that end. Hundreds of papers have been sent to the Committee from schools which have wide-awake, energetic men at the head of them ready to push their claims. I fear our little silent corner will be quite overlooked unless we have "a friend at court" to speak for us. It would seem an opportune time for the profession, which is devoted to the interests of the deaf in Christian lands, to unitedly approach the Committee of the Laymen's Movement with some proposition on behalf of work for the deaf in this great land. Could this be done something might come of it, but it means some personal work on the part of the leaders.

With an endowment of fifty thousand dollars, U. S. currency, well invested; with a Christian Endeavor or Missionary Society in every institution in America and Great Britain, pledged to such a yearly contribution as would not be a great burden; with the hearty sympathy of all teachers of the deaf, we could go on with the work and keep before this people a beautiful example of what Christian lands do for their unfortunate children, until such time as they are ready to assume the responsibility themselves. They are becoming increasingly interested and plans are being made looking to the opening of schools in Peking and Shanghai which shall be supported by the Chinese.

The coming of 1908 will mark a mile stone in the life of the Chefoo School and close its first decade of work as an independent mission. It would seem a fitting time to place it on a better financial basis than the present uncertain one. Recommending it, therefore, to your consideration, and through the pages of the REVIEW to the profession, to the friends of the deaf, and to the deaf themselves, I remain, dear Mr. Booth,

Yours, in His name, for the deaf of China,

ANNETTA T. MILLS.

[The following is the paper, referred to by Mrs. Mills, forwarded to us by the Board of Foreign Missions in New York. It is a full and a most interesting statement of the present condition and resources of the Chefoo School for the Deaf and of its immediate and pressing needs. The statement will be welcomed by the friends and supporters of the school throughout the country as affording them a clear view of the present situation and as pointing the way for further action on their part in the sustenance and enlargement of the great work that the school is carrying on.—EDITOR REVIEW.]

SCHOOL FOR THE DEAF, CHEFOO, CHINA,
September 24, 1907.

F. CLEMENT COOPER,
Secretary of the General Board of Education,
St. John's University, Shanghai, China.

DEAR SIR: In accordance with the circular issued by the Board, of which you are secretary, we send the following in regard to the School for the Deaf at Chefoo and its claim to consideration by the General Board of Education and its presentation to the philanthropic laymen of America and England:

(1) The estimated value of our educational plant is (Mexican) $14,300.00

(*a*) Amount and value of land:
Seventeen and one-half acres, cost price 3,000.00
Present value, about 5,000.00

(*b*) Number, nature, and value of buildings, three buildings:
(1) One, originally built for the boys' school, now occupied partly by the missionary in charge and partly as a dormitory, value ... $5,500.00
(2) A building of four small rooms, now used as school-rooms, but built as a dwelling-house; unsuitable for present use, value ... 1,000.00
(3) Kitchen, servants' rooms, and outbuildings, value 1,500.00

(*c*) Number and value of residences for foreign teachers:
At present there is no building for the foreign teachers in charge, a part of that intended for the boys' school being in use.

(*d*) Amount, nature, and value of equipment, apparatus, libraries, etc. Equipment consists of:

(1) Phonetic Charts, covering the whole syllabary.

(2) Pictorial Charts, compiled and made at the school (these were given a gold medal at the St. Louis Exposition), value..... $300.00

(3) Visible Speech Charts, Bell's, adapted to the Chinese, value..... 100.00

(4) Graded lessons, a set of four books printed from blocks, value..... 500.00

(5) Photographic outfit, value..... 200.00

(6) Furniture for school use, etc., value..... 150.00

(7) Books for use and library, maps and globe, value 50.00

(*e*) Amount of endowment:
None at present, but it is desired to have one of $50,000.00. $1,000.00 gold is promised if we can get the other $49,000.00. There is also $500.00 (Mexican) toward this on interest at 7½ per cent.

(2) What is your present teaching staff (foreign and Chinese)?

Foreign, two women—Mrs. A. T. Mills and Miss A. E. Carter; native, three male teachers, two of whom we expect to send out to take charge of branch schools and one woman for the girls' school.

(3) Has your Mission decided upon any definite policy with regard to your educational work? If so, what?

Not being connected with any Mission, we have, in the main, adopted the policy of schools for the Deaf in Christian lands, viz:

(*a*) To give the deaf a using knowledge of language, through which a saving knowledge of the Christian religion can be taught.

(*b*) A trade or craft given them by which they can earn a living.

(*c*) The training of hearing native teachers who can extend the work into other parts of the land; also, such as are suitable among the deaf pupils to be trained as their assistants. It is our hope to see a school started in every province, and where desired to place a trained teacher in charge of a class in connection with already existing Christian schools for the hearing.

(4) During the next ten years by how many do you wish to increase your foreign staff? What sum would be necessary for their salaries?

We hope to increase our foreign staff by the addition of three foreign teachers—one a teacher of trades; also, a matron, making four in all, with the average salary of $700.00 gold, each; $2,800.00 of an increase over the present expenditure.

(5) What estimates have you made under the following heads?

(*a*) Building for a girls' school (we have the land), (Mexican) $4,000.00

(*b*) Erection of a suitable building for the boys' recitation and study rooms, to replace the present inadequate ones..... 5,000.00

(*c*) Teachers' rooms, servants' quarters, and out-buildings must follow soon..... 3,000.00

(*d*) An addition to the present building to make it a suitable dwelling for the one in charge..... 2,500.00

(*e*) Outfit and furniture. A small printing outfit.. 500.00

This is needed for two reasons:

(1) To fit a few boys as type-setters.

(2) To print information and lessons.

(6) Do you desire to secure an endowment fund, and if so, at what figure do you put it?

In order to secure the continuity of the work it would seem best to have an endowment which we would place at $50,000.00 gold; some promises have already been made toward this, notably $1,000.00 from Dr. Alex. Graham Bell, of Washington, D. C., in case the rest is raised.

Further Remarks.

The school for the deaf at Chefoo has an attendance of twenty-one boys and we are just opening a department for girls with eleven pupils promised as soon as they can have suitable escort for their journey here. Some of them come long distances and represent seven out of eighteen provinces of China.

The number of deaf and dumb probably averages one to every five hundred of the population, which would justify some outlay by the Christian church for them, not merely in the name of humanity but as an object lesson to this people.

They are the only people in the world who cannot know the gospel without first being given a means of understanding language, which can only be given to them in schools. They are in fact the only class who are entirely dependent on schools for their knowledge of

Christ, and work for them is as beautiful an example of the love of Christ as hospitals and dispensaries, and schools for the blind. They become, when educated, law abiding and useful members of society and it pays morally and intellectually and financially to educate them.

Believing that something should be done for the thousands of deaf and dumb in China, Mrs. Mills left the care of the Presbyterian Board, not because the members of that board did not approve of work for the deaf, but because they had not the money to give to it; believing, also, that God never providentially prepared a worker without providing the tools for her work, she has held on when the way seemed difficult, believing further, that Christ died for the deaf and dumb, and that we, following His example, should give them the gospel, she has, therefore, given her life to this work.

The school which was established in faith, owes its inception and continuance to the deaf of Christian lands assisted by philanthropic friends. In some instances pastors and clergymen, settled over churches for the deaf, have interested their flocks who, knowing the great privation of deafness and the blessings of an education, have held entertainments and sales for the benefit of their heathen brothers and sisters, often giving generously of their time and means. Great praise is due to them and to their leaders for what their efforts have enabled us to accomplish.

In a number of the schools for the deaf, Christian Endeavor or Missionary Societies have been formed and yearly gifts sent. The first to do this in America was the school in Rochester, New York, U. S. A., and in Great Britain, the deaf of Belfast and Edinburgh. Interest in these centers for the deaf is increasing, fostered by those in charge of their training, realizing that they have a right to be taught, as are little hearing children in Sunday schools, to help their less fortunate brothers and sisters "for Jesus' sake."

We have now come to the time when the school is attracting the attention of the Chinese officials, who are talking of opening similar schools in large centers, using teachers trained by us, and it devolves upon us to give them a good model, and for this our present support is inadequate. The school needs friends who will be responsible for its support, thus relieving Mrs. Mills of the necessity of giving her time and strength, which should be entirely devoted to the teaching and the training of native teachers, to that of raising funds.

Different associations formed in the interests of the deaf in the U. S. and in Great Britain have taken up the matter and much help may be expected from them, but the point has been reached when

the interest already aroused should be crystallized into a strong working contingent, and for this is needed friends who will help us to bear the burden.

The property accumulated from gifts by Mrs. Mills for the use of the school is held in trust by a local board of trustees.

The above are some of the reasons why we make bold to press the claims of the Chinese deaf and dumb to the attention of the philanthropic people of America and England, praying that they will help us to make this work, humanly speaking, a permanent monument to Him who said "Epaphatha."

(Signed) JOHN FOWLER, Con. Gen. M. S.
W. O. ELTERICH, Am. Pres. Mission.
GEORGE CORNWALL, Am. Pres. Mission.
HELEN S. C. NEVIUS, Am. Pres. Miss.
ED. TOMALIN, Chinese Inland Miss.
ANNETTA T. MILLS.

NOTE.—The above were all the members of the Board of Trustees who were at the time in Chefoo.

THE EIGHTEENTH MEETING OF THE CONVENTION OF AMERICAN INSTRUCTORS OF THE DEAF.

GALLAUDET COLLEGE, WASHINGTON, D. C.,
December 24, 1907.

To the Members of the Convention of American Instructors of the Deaf:

It was decided at your meeting at Morganton to accept the invitation of the authorities of the Utah School for the Deaf and the Blind to hold the next Convention in that Institution.

After conference between the members of the Standing Executive Committee and the Superintendent of the Utah School, it has been decided to invite the members of the Convention to meet at Ogden on the 3d of July next. The Convention will be called to order, at an hour to be decided hereafter, on Saturday, the 4th of July.

It is expected that the members of the Convention will be fully accommodated in the buildings of the Institution or upon its grounds, and a charge of $1.25 per day will be made for board. Superintendent Driggs writes that the Institution will be able to provide rooms in its buildings for about 150 guests, and that it will provide tents upon its spacious lawns for 150 more. He adds that there are a number of excellent hotels in Ogden where members of the Convention may secure good accommodations if they so desire.

Arrangements will undoubtedly be effected for the transportation of members of the Convention at reduced rates, the particulars of which will be published later. All persons availing themselves of these transportation rates and of the special rate for board in the Institution, who are not already members of the Convention but are eligible to membership, will be expected to become members at the Ogden meeting. The conditions of membership are as follows:

"All persons actively engaged in the education of the deaf may enjoy all the rights and privileges of membership in the association on payment of the prescribed fees ($2.00 the first year and $1.00 annually thereafter), and agreeing to the Constitution."

All persons taking advantage of the rates for board or for reduced railroad transportation must either be members of the Convention or pay $2.00 to the Treasurer of the Convention, showing his receipt for the same.

It is expected that the meeting of the Convention will continue for about a week. Superintendent Driggs will act as Local Committee, informing members of the Convention what arrangements he is able to make for transportation and for excursions to points of interest within easy reach of Ogden.

Mr. J. W. Jones, Superintendent of the Ohio Institution, the Chairman of the Committee on the Normal Section, has been appointed Chairman of the Committee on Program. All persons wishing to present papers or subjects for discussion are requested to communicate with Mr. Jones at an early date.

It is important that members of the Convention should inform Mr. Driggs well in advance of the meeting of the Convention of their intention to attend.

With cordial greetings from the Committee to the members of the Convention, and to all engaged in the work of educating the deaf or interested therein, the hope is expressed that the Eighteenth Meeting may be one of more than ordinary interest.

E. M. GALLAUDET,
President of the Convention.

Superintendent Driggs gives additional information as to railroad arrangements as follows:

"The railroad officials write that usually there are very low summer tourist rates from the East to Ogden which will take care of the Convention very nicely. Also that if these rates are not continued for the coming summer, an effort will be made to make a special rate for the Convention itself. In either case we shall prepare a circular with detailed information as soon as we have anything positive, and forward same to all Schools for the Deaf. We have already quite a number of requests for the reservation of tents and rooms, indicating that the Eighteenth Convention will be a big one. If you are coming, please let us know soon. Will you have tent, room, or hotel?"

Superintendent Argo, of the Colorado School, has extended a cordial invitation to members of the Convention to stop off when they reach Colorado Springs and visit his school.

BOOKS, PERIODICALS, AND REPORTS.

THE MECHANISM OF SPEECH. Lectures delivered before the American Association to Promote the Teaching of Speech to the Deaf, to which is appended a paper on Vowel Theories, read before the National Academy of Arts and Sciences. Illustrated with charts and diagrams. By Alexander Graham Bell. Funk & Wagnalls Co., New York. 1907. Second edition, containing Synopsis and Index. $1.20. To be obtained from F. W. Booth, Washington, D. C.

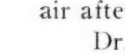
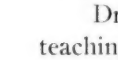
When a capable teacher wishes to create in a pupil's mind the ability to understand a certain subject, she does not commence with an arbitrary statement of the facts or what she thinks about them. On the contrary, she begins at a point relatively far distant, and working gently but surely toward the end she has in view, leads her pupil after her until, by some effort of his own, he arrives at a clear understanding. In the Mechanism of Speech, Dr. Bell, himself the wisest of teachers, follows this natural plan. Originally delivered as lectures before the first Summer Meeting of the American Association to Promote the Teaching of Speech to the Deaf, but now issued as an interesting and desirable volume in its second edition, this book is of itself a remarkable illustration of the author's practical methods of instruction. There is an end in view from the very beginning, and the lectures follow each other with entire unity toward that end, while at the same time countless interesting asides occur just as in the lessons of a clever and experienced teacher.

The first thirty-five pages are devoted chiefly to describing the formation and action of the organs of speech, the explanations being varied by many interesting accounts of the surgical operations and unique experiments that Dr. Bell has witnessed. Under the heading, "Methods of Studying the Mechanism of Speech," are gathered the facts concerning articulation which lead us by a regular mental process to understand the importance of "Visible Speech" as an agent in teaching the deaf. For those teachers who, lacking this knowledge, make their classes learn Visible Speech as an abstract subject, without applying it in their work, the book should prove a revelation.

To take one of the instances given of the practical use of the symbols: In teaching a child such a difficult sound as the vowel *oo* in *too*, the teacher has to convey to him the meaning of the three positions of the vocal organs, viz., the labial position, the lingual position, and the laryngeal position. For each of these actions, which in the Roman letter system are designated merely by *oo*, we have in Visible Speech signs that convey to the child just what the teacher wants him to do, the three elementary signs being combined into one symbol which stands as an accurate picture of the vowel itself. "Combinations of positions yield new sounds just as combinations of chemical elements yield new substances." In resolving sounds, by the help of Visible Speech, into their elementary forms, "Visible Speech becomes a symbolical language whereby any imaginable position of the vocal organs may be expressed so as to be understood by the children."

In a book where so much is of importance, it is difficult to select passages, but there are certain paragraphs that might be printed in italics, so replete are they with forcible and suggestive ideas.

"It does not matter what sound you get from a child, so long as you get a sound. The plan is to follow the child up and symbolize the different sounds made, and get him to remember and repeat the varieties that occur. I go from the known to the unknown. The queer sounds that children make are the known sounds to them, and the English sounds the unknown."

The chief value of the Visible Speech symbols "lies in their ability to express the mechanism of the sounds the children make so as to show in a graphical manner their relation to the English sounds we wish them to give." Without the use of symbols it is difficult to explain to a deaf child the nature of certain defects, such as a faulty rendering of the *tn* in "cotton"—a vocalization of the puff of air after the *t*; *i. e.*,  for  .

Dr. Bell's criticism of what he calls the "No-no method" of teaching is worthy of grave attention. "The first step in the correction of a defect is to study the mechanism of the defective sound. Imitate the defective sound yourself, and then study your own vocal organs. With this knowledge the teacher can not only devise means (1) of correcting the defect, but (2) of utilizing it in the production of other sounds." And on an earlier page he says, "Learning to speak is like learning to shoot. Now, suppose you aim at a target for the first time, and fail to hit it, and you are simply told, 'No, no; that's not right. Try again!' Well, suppose you do try again.

The chances are that you fail, and if you were simply told once more that you didn't hit the bull's-eye, you are no further advanced than you were before. That's not the way to learn to shoot. You must know *where your bullet struck when you failed,* so as to see the relation between the point struck and the point you intended to hit. . . . The No-no method, besides discouraging the beginner, fails to give the very information that is necessary for his progress. The deaf child must know *what he did when he failed,* and the relation of the position struck to the bull's-eye." And this, let us say, is just what Visible Speech is capable of showing him, graphically and clearly.

From the very beginning the book is full of interesting and valuable suggestions. The Synopsis (prepared by Dr. Bell himself) is of inestimable worth to both the teacher and the ordinary reader, giving, as it does, in a few words, an idea of the subjects touched upon in the lectures, and enabling the reader to refer afterwards to any point he wishes to review. The volume is also completely indexed. Appended to the lectures is a reprint of Dr. Bell's paper on "Vowel Theories." The book is attractively bound, and attention should be called to the superior paper, which is one of the improvements in this second edition.

As an explanation and setting forth of the uses of Visible Speech, the lectures should be read by every one interested in the welfare of the deaf. Articulation teachers, in the midst of the defeats and disappointments, the successes and quiet triumphs of their arduous work, most emphatically should avail themselves of so valuable an instrument as this book, rightly studied, must prove.

HARRIET U. ANDREWS.

PROCEEDINGS OF THE EIGHTH CONVENTION OF THE National Association of the Deaf, held at Norfolk, Va., July 4, 5, and 6, 1907.

This is an excellently printed and carefully edited book of 85 pages, containing the full proceedings of the Convention of the American Deaf, held at Norfolk the past summer. The illustrations in the work are especially fine, and they, with the text, will serve their purpose as a record of what the deaf of this generation are in their leadership, and what they have accomplished and are aiming to accomplish for their own advancement and the good of society at large. Copies of the book can be obtained through the Secretary, W. C. Ritter, Hampton, Va.

PSYCHOLOGICAL BASIS OF THE GERMAN METHOD[1] in the Instruction of the Deaf, and Critical Consideration of the Finger-alphabet and Sign-language. By Friedrich Werner, Director of the Provincial Institution for the Deaf at Stade. Berlin: Reuther and Reichard.

In his introduction Director Werner finds the text for his essay in a quotation from Dr. Stern's "Helen Keller," etc.[2] In this quotation Dr. Stern claims that deaf children cannot learn speech as normal children learn their maternal tongue, in the way of natural conversation coupled with mental assimilation; but that they learn it "as normal persons learn a second language, viz: by constructing it systematically from its elements, passing from sounds to words, inflections and sentences;" that, "for a long time the instruction of the deaf is predominantly a struggle with sounds and articulations, a mechanical drill in positions and movements of the organs of speech, in inspirations and expirations, etc., whose meaning and value are wholly closed to the pupil and which, even when he begins to apprehend them, are not mentally assimilated." The principle "that all learning-to-speak (*Sprechenlernen*) must be a learning-to-speak-and-to-think (*Sprech-Denken-Lernen*)," he claims, "is too much ignored." Thus it happens, according to him, that the precious time used for purely technical drill is irretrievably lost for mental development, and that, in spite of every effort, speech with a considerable number of the deaf fails to become the natural expression of their mental life and that, out of school and after school life, they fall back into gesture and, consequently, into the danger of intellectual stagnation."

Dr. Stern finds a remedy for this in the finger-alphabet, as "a natural connecting link between sign-language and oral-language, which lifts the mind above the level of mimic limitation and prepares in the happiest fashion for the later acquisition of speech. In accordance with the psychological principle that an increase in psychic content does not necessarily imply an increase in psychic labor, that in matters of education the straight road is not always the shortest,

[1] The German or oral method, as contrasted with the French or sign method, was originally distinguished by the mere effort to teach the deaf the art of understanding and using spoken words. Later on, it added the further requirements of excluding the finger-alphabet and of prohibiting, during instruction, the use of gestures peculiar to deaf mutes, and aimed at the entire suppression of gesture-language.

[2] "Helen Keller; the Development and Education of a Blind Deaf-mute as a Psychological, Pedagogical, and Philological Problem." Vol. VIII, No. 2, of Essays bearing on Pedagogical Psychology and Physiology, edited by Prof. Th. Ziegler (Strassburg) and Prof. Th. Ziehen (Berlin).

but that frequently auxiliary activities are indispensable, he finds in the finger-alphabet such an auxiliary activity in the acquisition of oral language, as shown in Helen Keller.

Director Werner attributes "this restlessness and hesitation, this groping and ever renewed experimenting," as instanced to him in Dr. Stern's views, to the fact that "the German method lacks a rational explanation on psychological grounds," and this explanation he proposes to furnish. He proposes to show, "on the basis of experience, that the ability to speak can be attained and, above all, permanently established, only when speech is ever kept in the foreground," and also to prove that the recommendations of Dr. Stern are not practicable. For these purposes he deems it necessary, on the one hand, "to point out clearly and definitely the difficulties and weaknesses of the German method," and, on the other hand, "to take a brief survey of the entire field of the education of deaf-mutes." In this, however, the term "deaf-mute" applies exclusively to those who are afflicted with congenital total deafness, about 50 per cent of those who attend upon instruction.

Director Werner begins his discussion with a sketch of the development of speech with hearing persons, whose thinking is connected with perceptions of sound. The primary activity on the part of the hearing child in acquiring speech is the audible imitation of audible speech. Inaudible thinking is a secondary activity brought about by the inhibition of the organs of articulation. In audible speaking this inhibition is withdrawn.

With civilization or culture, reading and writing are added to hearing and speaking. At first, the pupil finds himself under the necessity of reading aloud, inasmuch as the sound-perceptions with which his thinking is associated can be reproduced only by acoustic word-images. But as corresponding optical centers develop under continued practice, he learns to read inaudibly and, finally, the mere seeing of the words is sufficient.

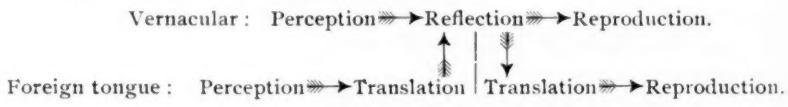
Similarly, in learning to write, the pupil must, at first, give his entire attention to the movements of his hands. In due time, however, motor centers are developed for the coördination of written with audible symbols.

In the subsequent acquisition of a foreign tongue, the hearing pupil, at first, translates the foreign words or sentences into terms of his vernacular in which he thinks; and, *vice versa*, in attempts to express his thoughts in the foreign tongue, he first formulates them in his vernacular and then translates into the foreign terms. In due

time, however, he may enter into the spirit of the foreign idiom and learn to think in its terms.

Much is gained, as experience proves, if the learner is placed in an environment which uses only the new language, inasmuch as the disturbing influence of hearing his vernacular is then excluded. Moreover, the younger the learner, the greater will be the gain on this score. These considerations lead to the conclusion that "the acquirement of a language offers the least difficulty if, in the first place, it is direct and, in the second place, if it takes place as early as possible, when critical reason is not as yet sufficiently developed to hinder the immediate interest in the language which by its musical character appeals more to feeling and memory.

The fact that in the acquisition of a foreign tongue the complete congruence of perception, thinking, and reproduction is impeded in the ratio in which thought or reflection requires translation, Director Werner illustrates as follows:



If we think only in the vernacular, the sound-images of the foreign tongue are not stimulated, partly because of the narrow limits of consciousness, and partly because the succession of words differs in different languages.

Largely on this basis Director Werner looks upon the sign-language of the deaf as the greatest hindrance to the ready development of a word-language. Gesture-language with its descriptive, suggestive, symbolic, and conventional signs is the vernacular of the deaf; it has no grammatical forms; in its syntax it differs totally from the word-language, as it usually begins its sentences and phrases with the most important words [*e. g.*, Father angry—punish—son lazy]. Therefore, a translation from the one into the other encounters the greatest difficulties: "they are to each other as fire and water." In short, they practically exclude each other and, therefore, at least in instruction, the sign-language must yield to the word-language, if the latter is to thrive and become established.

From the standpoint of the deaf, Director Werner justifies their defense of the sign-language, in as much as oral language, which in its origin and establishment depends necessarily on the ability to hear, must ever remain to them something unnatural; indeed, he claims, a sound-language as such is unthinkable to a deaf-mute, could never have been invented by deaf-mutes.

He waives the discussion of the reasons why the deaf are taught to speak, and confines himself to the presentation of proof why the German method must proceed as it does in its effort "to place the deaf in possession of the written and oral forms of the word-language and to make the latter the basis of his thought-life."

Resting on the fact, as proved by experience, that the deaf can learn and use the word-language, he inquires into the psychic factors with which they connect the respective thought-content. These he finds partly, with Wundt, in sensations of motor innervation, partly in contact sensations (as when the tongue touches the palate, etc.), partly in sensations connected with the vibration of the vocal chords, and designates them collectively as SPEECH-SENSATIONS (*Sprechempfindungen*), rejecting the term speech-perceptions, which might easily include perceptions of sounds.

In this connection he notes a significant difficulty that attends the reproduction of speech-sensations when a deaf person attempts to speak, as contrasted with signs, writing, and the finger-alphabet. "With the latter," he writes, "the deaf can control the correctness of his utterances; with speech, however, he is in the truly deplorable condition, in the first place, that he cannot be certain that his speech-movements are correct; and, in the second place, that he cannot himself perceive objectively what he says."

With reference to the further requirement of the German school that the deaf must learn to *read from the lips,* he notes the difficulty that "scarcely one-half of the sounds can be actually read, while the other half must be complemented and inferred by context." Moreover, while "in the oral language of hearing persons, as well as in the sign-language, the finger-alphabet, and the written language of the deaf the communications from others always appear in a form which is congruent with the respective forms of reproduction and thought," the deaf in reading from the lips are under the necessity first of all of reproducing, in addition to the optic word images, the corresponding speech-sensations which besides belong to another sense, the sense of touch. "Only after many repetitions, therefore, will the deaf be able to connect intimately the designated idea with the speech-sensation."

Nevertheless, "since the deaf are subject to the same physiological and psychological laws with the hearing, the assertion is justified that in due time there is established in the deaf a *connection between thinking, reading from the lips, reading, speaking, and writing so intimate* that these activities appear to them as but one common process."

Psychologically, he considers it a significant fact that the deaf, when they speak with each other, do so without voice, since this has no value in reading from the lips. For the perception of their own speaking, too, the tone of voice does not signify, since it is to them merely a vibration of the larynx and the same for all vowels, which are modified in character, not in the larynx, but in the mouth and in the nose.

As to the manner of memorizing given literary pieces, Director Werner notes three stages of development: In the first of these, the pupil memorizes with full articulation; in the second, with voiceless articulation; in the third, with inhibited articulation. The last stage is fully attained by only very few; with the majority some slight movement of the organs of speech remains.

After contrasting in fuller detail the development of speech in the hearing and the deaf, Director Werner concludes this section as follows: "For the hearing, speech is something natural; for the deaf, something unnatural. It is, therefore, wholly erroneous and inadmissible in the instruction of the deaf in speech to seek the ideal in the exact imitation of the language development of the hearing."

The next section is devoted to a specific discussion of Dr. Stern's proposition to postpone instruction in speech to a time when the pupils have acquired, with the help of the finger-alphabet, a greater amount of language material than is now the case.

Director Werner admits that, "considered in itself, the finger-alphabet accords with the nature of the deaf much more fully than speech, more fully than thinking in speech-sensations, since the finger-alphabet not only enables them to test the correctness of their utterances, but is consistent with complete congruence of perception, thinking, and reproduction.

On the other hand, when viewing it in its relation to speech, he finds that, after the introduction of the latter, the deaf will continue to think in the finger-language; that, even when speech sensations have reached a certain autonomy, they will give their chief attention to the finger-language, while the speech-movements will be only latently innervated; and that, consequently, in time these speech-movements—as all voluntarily acquired movements are inclined to do—will become less and less distinct.

Incidentally, he finds that the same difficulties attend the method of basing the first instruction of the deaf upon writing, as defended by Goepfert of Leipsic; and reaches, ultimately, the following conclusion: "*As long as the deaf child shall remain subject to univer-*

sally valid physiological and psychological laws, there will be but one way to teach him to speak permanently, and this the way of the German method, which seeks to make speech-sensations the basis of his thinking."

"The danger-point in both propositions (Dr. Stern's and Goepfert's) *is to be found in the fact that the arguments adduced in their behalf, apart from other considerations,* are correct in claiming that the writing method and the finger-alphabet are actually easier and more convenient for the deaf than the speech method. Nay, it may even be conceded that during the first years of school-life and, perhaps, even at the close of school-life, the deaf, educated after the proposed methods, may be further advanced in language and knowledge than our pupils are at present. Nevertheless, it may be positively maintained that in the course of time their speech will steadily lose in distinctness, and this is the crucial point; *for we sin against the deaf, if we teach him speech, when we know beforehand that he will lose it again.* The correctness of these statements is sustained not only by the history of the education of the deaf, but also by considerations of psychology."

Director Werner in the next section presents "the theoretical foundation of the oral method," with a critical sketch of the history of the oral method in Germany from its introduction by Samuel Heinicke, towards the close of the 18th century, to the present. He deplores the disturbing influence of De l'Epée's artificial sign-language and of the subsequent movement, chiefly identified with the name of Dr. Graser, to instruct the deaf together with the hearing in the common schools. He devotes interesting paragraphs to the discussion of the guiding principles of Moritz Hill (1805-1874), whom he honors as "the Pestalozzi of the instruction of the deaf." Nevertheless, he condemns these principles as erroneous and as hindrances to the further development of the instruction of the deaf.

His arguments in favor of this judgment are clearly indicated in his discussion of the development of speech in the hearing as contrasted with its development in the deaf, sketched above. It will, therefore, be sufficient here to quote Hill's principles. They read as follows:

1. "Since the deaf mute is a human being, he is as such endowed with the same capacities that are found in those in possession of all their senses."

2. "Develop speech in the deaf child, as life develops it in the hearing child."

For this second principle, he would substitute the following: *"Develop speech in the deaf child in such a way that his thinking may as soon as possible be based upon his speech-sensations."* In this principle he finds, in simple and lucid terms, the long needed and sought for psychological basis of the oral method.

The concluding section contains a survey of methods of the instruction of the deaf. These he arranges in two groups as follows:

Group I. *Word-language to be made the mode of thinking and the medium of communication of the deaf:*

A. At first speech alone, later on also writing:
   a. Without finger-alphabet: *Italian Method.*
   b. With finger-alphabet.

B. Speech, together with writing:
   a. Without finger-alphabet: *German Method—Oral Method—Pure Oral Method.*
   b. With finger-alphabet.

C. Written language, with it gradually speech:
   a. Without finger-alphabet (Goepfert's first proposition).
   b. With finger-alphabet: Heidsiek's *Manual-Alphabet-Method,* Goepfert's Method, Dr. Stern's Proposition.

D. Written language only:
   a. Without finger-alphabet.
   b. With finger-alphabet: *Copenhagen Method.*

Group II. *Sign-language to be retained as mode of thought; word-language to become merely the medium of communication with the hearing:*

A. At first speech alone, later on also writing:
   a. Without finger-alphabet.
   b. With finger-alphabet.

B. Speech, together with writing:
   a. Without finger-alphabet: *School of Leipsic* (Reich).
   b. With finger-alphabet: *Early German School.*

C. Written language, with it gradually speech:
   a. Without finger-alphabet.
   b. With finger-alphabet: *Vienna School* (Venus), Heidsiek's *Combined System.*

D. Written language only:
   a. Without finger-alphabet.
   b. With finger-alphabet: Heidsiek's *Manual System, French Method.*

Theoretically Director Werner arranges as most desirable these methods of teaching the deaf in the following order: I A *a*, I B *a*, I D *b*, and II D *b*. In I A *a* the deaf connect their thinking directly with their speech-sensations. This, however, in Germany, owing to the many difficulties which the German language presents in reading from the lips, is there deemed impracticable, hence the German Method adds writing and practices I B *a*. For the inadequately gifted deaf, he is inclined to recommend I D *b*; and only for those of least capacity he would use II D *b*.

As to the struggle for supremacy of the several methods, he does not think that those enumerated in Group II will ever seriously compete with the German method, although the adult deaf-mutes in their congresses energetically favor the combined method under II C *b*. On the other hand, he considers it probable that more serious and persistent rivalry will develop between the German school and the finger-alphabet method (I B *a* and I C *b*), inasmuch as the psychological and practical arguments adduced in favor of the latter are not without force. Hill's principles have no prospect, he holds, to secure victory for the German method; "this can only be achieved by establishing the German method on a psychological basis, on a foundation which will simultaneously justify all the educational measures of the German school.

"However," he concludes, "in our arguments as to method, we should never lose sight of the one fact: *Whilst of all methods the oral method most antagonizes the nature of the deaf-mute, no other method can so effectively restore him to human society.*"

W. N. HAILMANN.

LA VOIX, SA CULTURE PHYSIOLOGIQUE: THEORIE Nouvelle de la Phonation [The Voice, its Physiological Culture: A New Theory of Phonation]. By Pierre Bonnier. Pp. 299. Paris: Felix Alcan, 1907. Price, 3.50 francs.

While this work is in the French language, the illustrations accompanying the text of themselves will prove of sufficient value to justify the addition of the book to the working library of every articulation teacher. In truth, we have never seen pictures and diagrams to approach them in completeness and self-explanatory clearness. It is to be hoped the work may soon have English translation. The following review, which we find in Nature, is from the pen of Prof. J. G. McKendrick, F. R. S., a noted authority and the

doctor who performed the operation upon "the Scotchman at the Glasgow University with a harmonium reed in his throat in place of vocal cords," as referred to by Dr. Bell in his lectures upon "The Mechanism of Speech." The review is here reproduced for the practical thoughts it contains bearing upon our problems of voice production and training in giving speech to the Deaf:

This is an excellent work on the physiology of the voice. Nowhere have we met with a clearer exposition of the anatomical structure of the larynx, the mode of voice production, and the mechanism of breathing. The diagrammatic figures showing the action of the muscles are specially to be commended. The author rightly discredits the old-fashioned view that a vocal tone is produced by the vibrations of the margins of the true vocal cords. In a sense this is true, but it is an incomplete statement of the truth, and M. Bonnier lays stress on the variations of pressure that occur in the laryngeal cavity. The vocal cords are brought close together, and then, by an expiratory effort, the pressure below the cords becomes much greater than in the ventricles of Morgagni above the cords and in the upper part of the larynx. This increased pressure opens the chink of the glottis, and the cords are slightly stretched upwards. The air escapes, the cords again approximate, and there is a fall of pressure below the cords whilst the pressure rises in the ventricles and in the upper part of the larynx. There is thus a puff of air. This is repeated again and again according to the period of the vocal tone produced.

M. Bonnier associates the old view with the name of Helmholtz, and he so far claims the newer view as his own. This is scarcely correct. Undoubtedly Helmholtz expounded the mechanism of tone production on the "puff" theory, and he likened the acoustic action of the larynx to that of a siren. The view so ably dealt with by M. Bonnier is now almost universally taught. M. Bonnier gives an admirable account of the action of the resonating cavities in modifying quality of tone. He illustrates this by an analysis of the bass, tenor, alto, and soprano voice, and he indicates the physiological mechanism which brings out the best quality in each of these voices, a mechanism which can be trained under a competent teacher. He shows that there is a constant interplay between the muscular mechanisms and the air pressures in the larynx, so that under favorable conditions the best qualities of the voice may be produced. Accent in singing, as the effort of the singer to give emotional expression, is brought about by the action of the nervous arrangements on the muscular mechanism.

There are many excellent remarks on articulation, on the trill, on the means for, as it were, "flinging out" the voice so as to make it effective, and on the vocal registers. There is a brief account of some of the mistakes by which the voice may be injured, and the volume closes with a description of the results obtained by a clinical examination (by laryngoscope and otherwise) of forty-four voices

of persons who desired to become professional singers. Of the forty-four, eight were chosen, and thirty-six were rejected as having such qualities that no amount of training could efficiently fit them for following a *carrière lyrique*. This book places voice production on a scientific basis. Many teachers have taught empirically, and with remarkable success, but they may have made mistakes. M. Bonnier conveys the scientific knowledge that is always the surest guide.

VERWALTUNGSBERICHT DES MAGISTRATS ZU BERlin für das Etatsjahr 1906 [Official Report of the Magistracy of Berlin for the Year 1906], including a Report of the Municipal School Committee.

In a report covering all schools, from the primary course to the high school, classical preparatory school, schools for boys, for girls, mixed, public and private, the following of interest to us is found inserted under "Schulen für viersinnige" [Schools for those with four senses]. Of 228,454 children educated at public expense there were 180 pupils in the deaf and dumb municipal institute, distributed into 16 classes.

In the year 1906-7 the faculty consisted of one Director, 14 female teachers of scholastic branches, and 5 technical instructors.

The plan of instruction aimed especially, besides at the moral and religious education of the pupils, to develop the power of articulate speech, so that they might communicate *viva voce* with their hearing and talking fellow-beings, and that they might hereafter be enabled to take an independent position among men. For this reason the greatest weight was given to cultivating the faculty of speech among the pupils. Any dormant powers of hearing or of speech were sought for, and made use of. Such of the children as had learned to speak before they became deaf were trained by exercises in articulation, so that in many cases normal speech was restored.

As the lack of hearing can be and is principally compensated by the vision, in this year as in previous years special attention was given to guard and develop the pupils' sight, and when necessary, medical advice was sought.

The municipal deaf-mute institute does not at once classify the pupils by their ability, as is done in so many other such institutions, but care is taken, in organizing the classes and by means of individual instruction, to give those pupils who are backward or deficient in intelligence such assistance as they may require.

The arrangements made for special hours for parental lessons to maintain the tie between parents and pupils were continued, and found fruitful of blessings in the maintenance and continuance at home of the instruction received at school.

The attendance was regular and satisfactory, notwithstanding that the pupils were distributed in all parts of the city. Valuable

assistance in this direction was given by the use of vehicles furnished by the municipality or the Abegg endowment.

The Berlin Association for vacation colonies furnished the means of sending 15 weakly children on a much-needed vacation.

A great pleasure was given the children by the distribution of tickets to the performance of "Minna von Barnhelm," at the Schiller Theater. The pupils had previously read the Lessing comedy, and were able to follow the play with the greatest interest and with understanding.

The charity of noble men and women allowed of a Christmas festival being prepared for the pupils, and some 50 of the most needy received gifts of warm clothing and shoes and stockings. These articles are given quietly to the parents, that they may add them to the gifts on the Christmas table.

It may be attributed solely to the consistent cultivation of the oral method that all the pupils, when they leave the institute, are competent to earn their living. The boys on leaving school were apprenticed to good trades, and most of the girls were similarly provided for.

These boys and girls continue to follow the course of the municipal school for the further development of deaf-mutes, which has at present five classes for youths and two for young girls. This school maintains and broadens the school knowledge and brings it in more direct relation with practical and business needs, and keeps them in practice in the gift acquired in the institute of oral conversation with those who can hear.

PROCEEDINGS OF THE INTERNATIONAL CONFERence on the Education of the Deaf, held in Edinburgh, July 29–August 2, 1907.

The complete report of the proceedings of the International Conference of Teachers of the Deaf, held the past summer in Edinburgh, is now before us in the form of a well printed and illustrated volume of 176 pages. The report throughout in its excellent features is in keeping with the rest of the work of the Conference, which made the meeting one of the most enjoyable and profitable that has ever been held, and the committee of management is to be congratulated in completing their task thus in so creditable a manner. The book contains all the papers in full that were read, as well as the discussions upon them; also all the resolutions that were considered and passed, with likewise the discussions held upon them. The illustrations are largely of officers of the Conference and of prominent foreign delegates, and of the Edinburgh and Glasgow Institutions, also of groups of delegates. An appendix is given containing the "Braidwood Medal" prize essay, on the subject, "How to Encourage a Love of Reading in the Deaf," written by Mr. J. W. Barton, of the Margate School.

We take this opportunity to refer to the exhibit of school exercises, school books, and specimens of manual training and trades

teaching work from the various schools represented at the Conference, which exhibit we failed, through oversight, to speak of in our report of the Conference in the October number of the REVIEW. It was decidedly the finest exhibition of the kind ever gotten together, and it reflected credit not only on the schools sending the work, but upon the committee whose duty it was to secure it and to arrange it in place.

The book may be obtained by addressing Mr. E. A. Illingworth, Deaf and Dumb Institution, Edinburgh, or Mr. F. G. Barnes, School for the Deaf, Homerton, London. Price, 3 shillings (75 cents).

THE BERLIN MUNICIPAL SUPPLEMENTARY CLASSES for the Deaf. Report for 1906-7.

These classes are to afford the deaf who have been orally instructed the opportunity of continued regular exercise in speech and speech-reading, to facilitate their intercourse with the hearing, and to insure retaining what they learned whilst attending school. Instruction is free, and consists of instruction weekly five evenings from 7 to 9 o'clock. The summer course was attended by 80, the winter course by 68 pupils. The boys are taught language, arithmetic, and mechanical drawing; the girls receive instruction in language, arithmetic, needlework, etc. The municipal handicraft supplementary classes were attended by the deaf as follows: Bindery and pasteboard course, 10; cabinet making, 16; cloth printing, 1; engraving, 1; gilders, 3; house painters, 3; marble and stone polishing, 8; paperhanging, 4; saddlery, 2; shoemaking, 6; tailoring, 2; typesetting, 2; wood carving and sculpture, 3; miscellaneous, not included above, 18. Of blind 6 attended the piano-tuning and 17 the basket-making course.

THE LEGAL STATUS OF THE DEAF. The Development of the Rights and Responsibilities of Deaf-mutes in the Laws of the Roman Empire, France, England, and America. By Albert C. Gaw, D. C. L., Assistant Professor in Gallaudet College, Washington, D. C. 1907.

This is a pamphlet of 106 pages, and is a reprint of the series of papers running through successive issues of the American Annals of the Deaf for the past year and a half. The work was originally prepared as a required thesis for gaining the doctorate degree in Civil Law; it is, therefore, the fruit of the study and research of a trained mind along legal lines; more than this, it possesses qualities greatly adding to its trustworthiness due to the fact of the author's intimate knowledge of and varied experiences with the deaf of all grades of capacity, through his years of association with them in the various relations of school, social, and business life. The work is thus authoritative in the broadest sense, and it will, we doubt not,

be so considered by the legal profession and the judiciary, who will in the coming years make large use of it for their guidance in cases involving the legal rights and responsibilities of the deaf.

SUNTO SOMMARIO DEGLI ARGOMENTI SVOLTI DA G. Ferreri nelle sue Publicazioni [Summary Catalogue of the Works of G. Ferreri].

This is a pamphlet giving titles with brief descriptive notes of the works of Prof. G. Ferreri, whom our readers know so well and favorably through his contributions to the REVIEW. The list is interesting even in the titles alone as showing the scope of the literary work accomplished by Professor Ferreri in a comparatively brief space of time. We are glad to print the list of titles, which we do below, for its bibliographical values:

1. Otology and the deaf-mute schools. 1888.
2. Graduated reading exercises for deaf-mute schools. 1888 and 1889.
3. How to teach the deaf-mute to speak *Well*. 1889. Translation of address by G. Vatter.
4. Congenital deafness. 1891. Translated from the Danish of H. Mygind.
5. Some questions as to the education of deaf-mutes. 1892.
6. Measures necessary for the oral method in deaf-mute schools. 1893.
7. Education of deaf-mutes in Italy. 1893.
8. Remarks on an open letter from Prof. P. Fornari to the Minister of Public Instruction. 1896.
9, 10, 11. The deaf-mute and his education; Pedagogical, Didactical, Historical; 3 volumes. 1895, 1896.
12. The Conjugation of Italian Verbs. 1897.
13. Deafmutism. 1897. Translation from the German of H. Mygind. (Published also in English.)
14. On the auricular system of Dr. Urbantschitscht. 1897.
15. Elementary rules for the education of deaf-mutes. 1897.
16. Catalogue of works in the Library of the Royal Pendola Institute at Siena. 1898.
17. Charity and deaf-mutes. 1898.
18. Deaf mutes and compulsory education in the legislation of civilized nations. 1898.
19. The auditory faculty of deaf-mutes. 1899.
20. Deafness and deafmutism. 1899.
21. Language teaching for deaf-mutes. 1900.
22, 23. The International Congress of Paris.
24. A serious error. 1901.
25. Some letters from Dr. J. Wallis. 1903.
26. American Institutions for the Education of Deaf-mutes. 1903. (Published in English in the ASSOCIATION REVIEW.)
27. Two articles by Dr. Ernst Adolf Eschke. 1906. (Translated from the German.)

28. A month in Germany among the deaf-mutes. 1904.
29. An article by Helen Keller. 1904.
30. The development of the mind under the simultaneous deprivation of sight and hearing. 1905.
31. The education of blind deaf-mutes. 1906.
32. The educability of blind deaf-mutes. 1907.
33. The Congresses of Liege.
34. Legal guardianship of deserted and ill-used children. 1905.
35. With reference to an imperfection in the articulation of abnormal children. 1905.
36. The pedagogical question of infant schools for deaf-mute children. 1906.
37. Historical documents relative to the education of deaf-mutes. 1907.
38. Bulletin of the Roman Association for the medico-pedagogical care of indigent abnormal and defective children. 1907.
39. Testimony of deaf-mutes. 1907.
40. The cause of deaf-mutes at the International Congresses of Edinburgh and London (July–August, 1907).

STATISTISCHE NACHRICHTEN UBER DIE TAUBSTUMmen-Anstalten Deutschlands, sowie über deren Lehrkräfte für das Jahr 1908 [Statistics as to the Deaf-mute Institutions of Germany as well as their teachers, for the year 1908]. By Prof. J. Radomski, Director of the Provincial Deaf-mute Institute at Posen. Twelfth year.

This handbook of information, published in the form of an almanac, contains in a condensed form statistics covering the following subjects: Alphabetical list of teachers with reference to institution where employed. Tables giving reports relative to deaf-mute institutes under these heads: Locality; class; number of inhabitants by thousands; kind of institution; year of foundation; years of course; beginning of school year; number of teachers; number of classes; number of pupils; sex; religion; day school or boarding; age at admission; revenue by thousands; vacations. Tables showing details regarding teachers in deaf-mute institutes: Locality; name of teacher; position; year of birth; religion; year of entering profession; year of commencing tuition of deaf-mutes; year of entering this institution; present salary; lodging or allowance for house rent; additional employment and remuneration; classification. Brief remarks of interest under the following subjects complete the work: Supervision; Jubilees; Pensions and Deaths; Book Notices; Compulsory School Attendance; Associations.

REVUE BELGE DES SOURDS-MUETS ET DE LEUR ENseignement [Belgian Review of the Deaf and their Instruction]. Louvain, Belgium. December, 1907.

Contents: Audition and Phonation of the Deaf, by Dr. Marage and by I. Laudrain; The Nasal Voice, by A. Herlin; News Items; Reviews.

REVUE GÉNERALE DE L'ENSEIGNMENT DES SOURDS-Muets [General Review of the Instruction of the Deaf]. Paris. November, 1907.

Contents: Flying Visits, by G. Ferreri; The Siren for Vowels; The International Conference at Edinburgh, by Ad. Bélanger; Defects of Language arising from imperfect or defective organs, by R. Kolher; Audition and Phonation of the Deaf, by Dr. Marage; Book reviews, etc.

L'EDUCAZIONE DEI SORDOMUTI [The Education of the Deaf]. Rome, Italy. December, 1907.

Contents: Flying Visits, by G. Ferreri; Voice and Speech, by P. Parise; Analysis of the Principal Works of F. M. Hill, by E. Reuschert; Gleanings; Reviews; Notes and Comments, by the editor.

EPHPHETHA. Nos. 1, 2, and 3, August, September, and October, 1907. Published in the interest of the Deaf-mute Institute of the Province of Buenos Aires. La Plata, Argentine Republic.

This publication contains articles on the present condition of the education of deaf-mutes in Argentina, showing the inadequate provision made therefor. The census of 1895 reported, aside from 2520 persons classified as "idiots," among whom were doubtless included many neglected and uneducated congenital deaf-mutes, the number of 5,627 individuals classified and reported as deaf-mutes in a total population for the same census of 3,851,542. For these the national institutes (2) at Buenos Aires and that at La Plata, with an aggregate capacity of 200 students, are entirely insufficient.

A serial article upon Prof. Alexander Graham Bell and the Volta Bureau runs through the three numbers. We find also articles on the education of deaf-mutes by the oral method in the United States; the causes of deafmutism, and Gallaudet College. The October number gives an interesting map, showing the geographical distribution of deaf-mutes in the Argentine Republic and their proportionate relation to the density of population.

AMERICAN ANNALS OF THE DEAF. Washington. January, 1908.

Contents: Backward Children, by Jennie L. Cobb; Differences in the Natural and Artificial Acquisition of Langauge, by Karl Baldrian; Discussion of same, by Mary Williams; The Military Feature at the Fanwood (N. Y.) School, by A. Webster Dobyns; The Proportion of Deaf Persons Married to Deaf Partners and to Hearing Partners, by Alexander Graham Bell; Visits to American Schools for the Deaf, by W. H. Addison and Frank G. Barnes; Schools for the Deaf not Charitable Institutions, by J. Frank Hanley; Some Things we Should Like to Hear About at the Convention, by Sylvia

Chapin Balis; Methods of Instruction in American Schools for the Deaf, by the editor; Tabular Statement of American Schools for the Deaf, Nov. 10, 1907, by the editor; Industries Taught in American Schools for the Deaf, by the editor; List of American Instructors of the Deaf, November 10, 1907, by the editor; The Eighteenth Meeting of the Convention of American Instructors of the Deaf, by Edward M. Gallaudet; School Items and Miscellaneous.

REVISTA DO INSTITUTO NACIONAL DE SORDOS-Mudos [Review of the National Deaf-Mute Institute]. Rio Janeiro.

The two numbers of this review received (April and September, 1907) show commendable progress in Brazil in the oral method for deaf-mutes. The periodical is illustrated, and contains (April) an interesting article on the education of Helen Keller and Thomas Stringer, with portraits of the subjects of the article.

THE TEACHER OF THE DEAF. Woodvale, Bexley, Kent, England. January, 1908.

Contents: To Our Readers, by the editor; Amalgamated Examination Scheme; Educational Treatment of the Deaf, by Dr. James Kerr Love; Visit to American Schools, by W. H. Addison; Relation of the Invention of the Telephone to Deaf Education, by Fred De Land; The Education (Administrative Provision) Act, 1907; The Deaf—not Dumb; School Laws; N. A. T. D. Executive Meeting; Metropolitan and Southern Branch Meeting.

NORDISK TIDSKRIFT FÖR DÖFSTUMSKOLAN [Scandinavian Journal for the Schools for the Deaf]. Vanersbourg, Sweden. No. 10, 1907.

Contents: The First Scandinavian Congress of the Deaf, in Copenhagen, by Fredrik Nordin; Norway's Convention of Teachers of the Deaf, by P. Anderson; On the Teaching of the Deaf by Classes, by M. Gronning; The Deaf in Russia, by E. J.; Report of the Convention of Teachers of the Deaf in the Rhine Province, by A. J.

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EDITORIAL COMMENT.

THE ANNUAL MEETING OF THE BOARD OF DIRECTORS OF THE ASSOCIATION.

The annual meeting of the Board of Directors of the Association was held at the Lexington Avenue School, New York City, January 24, 1908.

There were present the following named directors: A. L. E. Crouter, president; Caroline A. Yale, second vice-president; Z. F. Westervelt, secretary; Sarah Fuller, Mary McCowen, Job Williams, Edmund Lyon, E. McK. Goodwin, E. A. Gruver; also F. W. Booth, general secretary and treasurer. Reports of officers and committees were read and the general secretary and treasurer read his annual report of the work of his office, including a financial statement covring the receipts and expenditures for the year.

A formal report of the work of the Normal Department of Clarke School for the past year and a half was presented by Miss Yale, and the Board thereupon passed a resolution unanimously approving the work done, and requesting of the Clarke School Board of Corporators that the normal training class be continued, and under such conditions as the corporators may elect to institute to make such continuance possible.

Miss Yale's report covered also the Summer School work of the past summer, there being an attendance of twenty-six teachers taking the four weeks' course. This work was also approved by the Board, and the corporators were, by resolution, requested to conduct a session of the Summer School the coming summer.

Upon Miss Fuller's suggestion the general secretary was directed to see what could be done to secure a republication of the "Raindrop," published originally at the Western Pennsylvania Institution by the teachers of that school.

The Visible Speech printing in the REVIEW received the hearty approval of the Board, and the editor was directed to continue the work as a regular department of the magazine and to secure such additional type as might be necessary for the purposes of the department.

The next annual meeting of the Association was appointed to be held at Rochester, at the School for the Deaf, on May 6, 1908, at 10 o'clock a. m. This will be a meeting of the members of the Association, in conformity to law, for the transaction of business, including the election of directors. No literary exercises will be held at this meeting.

The treasurer presented a list of persons who had applied for membership, and they were duly elected members of the Association. (See list printed elsewhere in this number of the REVIEW.)

The election of officers of the Board for the ensuing term resulted as follows: President, A. L. E. Crouter; first vice-president, Alexander Graham Bell; second vice-president, Caroline A. Yale; secretary, Z. F. Westervelt; auditor, E. A. Gruver; treasurer, F. W. Booth. F. W. B.

THE PSYCHOLOGICAL BASIS OF THE ORAL METHOD.

We wish to direct the attention of our readers—especially of those who, afflicted with honest doubts and confused by conflicting experiences, are yet earnestly seeking for a justification for the oral method resting upon psychological, physiological, didactic grounds—to the review presented in our "Books, Periodicals, and Reports" Department, of the pamphlet on the above subject, by Director Friedrich Werner, of the Institution for the Deaf at Stade, Germany. For our own part we have never had the pleasure of reading anything so clear, so philosophical, and withal so convincing, as showing the rational basis of the present-day German (oral) method as opposed to the various and sundry methods involving the early and large use of written language and of manual alphabets in deaf instruction. The whole argument of Director Werner centers upon and revolves about the dictum: "Develop speech in the deaf child *in such a way that his* THINKING *may as soon as possible be based upon his* SPEECH-SENSATIONS," and, thus formulated, it is given us as a fundamental principle in which is found "the long needed and sought for psychological basis of the oral method." F. W. B.

A new edition of the work on "Formation and Development of Elementary English Sounds," by Caroline A. Yale, has been published by the Association, and it can now be supplied upon application to the General Secretary. Price for single copies, 25 cents.

THE ANNALS STATISTICS.

The American Annals of the Deaf for January, 1908, gives its usual annual statistical tables relating to pupils and teachers in American schools reported as present on November 10, 1907. Our own crowded pages did not permit the analysis of the figures of last year's tables, so in what follows reference will, in places, be made to last year's figures.

The number of schools in the United States, including boarding, day, and private and denominational schools, was 137, an increase of 5 over the 132 reported a year ago, which in turn was an increase of 4 over the 128 reported in 1905. The number of pupils in school on November 10 was 11,648, or exactly the same number reported present on the same date the year previous, but 304 more than reported for 1905. The number of pupils "taught speech" (Column A) was increased by 194 in the year, the increase the previous year being 146; the number "taught wholly or chiefly by the oral method" (Column B) was increased by 855 in the year, but a decrease of 88 the year before leaves the net increase in two years 767. (The unusual increase the last year, and equally unusual decrease the year before, may be accounted for in the fact that one large institution, in its report of November 10, 1906, made no record of pupils in Column B, where its practice for many years—with this exception—has been to record its full pupilage in this column. The figures in Column B for this institution were, for 1905, 411; for 1906, ...; for 1907, 420.) The number of pupils taught wholly or chiefly by the auricular method (Column C) was this year decreased by 4, the increase the previous year having been 3.

The number of academic teachers increased from 1,159 in 1905, to 1,174 in 1906, and to 1,193 in 1907, a total increase in two years of 34. The figures show an increase in the number of articulation teachers in the last year of 2, the increase the year before being 16. The average annual increase in the number of articulation teachers during the past 14 years has been a fraction more than 31. (It should be noted that one large school—reporting this year 349 pupils taught speech and all of these as taught wholly or chiefly by the oral method—gives no figures showing the number of articulation teachers this year on its staff. The Annals figures of this school for the last three years show the number of its articulation teachers as, for 1905, 39; for 1906, 39; for 1907, ...)

The following tables give the footings of the Annals tables for the years from 1893 to 1907, inclusive, with percentages computed from them: (See also tables published in the ASSOCIATION REVIEW, June, 1907, pp. 370 and 371, and pp. 379 and 380.)

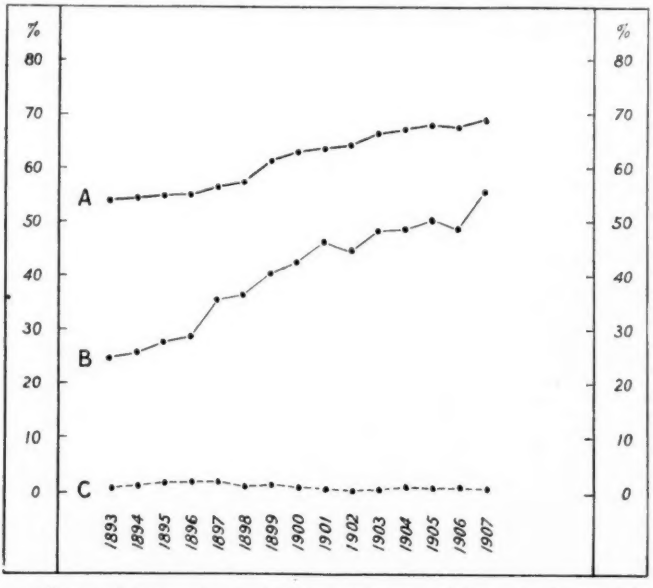
SCHOOLS FOR THE DEAF IN THE UNITED STATES.

Statistics from the Annals.

Year.	Total schools.	Total pupils.	Number of pupils taught speech.			Percentage of pupils taught speech.		
			A	B	C	A	B	C
1893.....	79	8,304	4,485	2,056	80	54.0	24.7	0.96
1894.....	82	8,825	4,802	2,260	109	54.4	25.6	1.24
1895.....	89	9,252	5,084	2,570	149	54.9	27.7	1.61
1896.....	89	9,554	5,243	2,752	166	54.9	28.8	1.71
1897.....	95	9,749	5,498	3,466	162	56.4	35.6	1.66
1898.....	101	10,139	5,817	3,672	116	57.4	36.2	1.14
1899.....	112	10,087	6,237	4,089	128	61.8	40.5	1.27
1900.....	115	10,608	6,687	4,538	108	63.0	42.8	1.02
1901.....	118	11,028	6,988	5,147	73	63.4	46.7	0.66
1902.....	123	10,952	7,017	4,888	63	64.1	44.6	0.58
1903.....	128	11,225	7,482	5,433	100	66.6	48.4	0 89
1904.....	133	11,316	7,601	5,508	154	67.2	48.7	1.36
1905.....	128	11,344	7,700	5,733	149	67 9	50.5	1.31
1906.....	132	11,648	7,846	5,645	152	67.4	48.5	1.31
1907.....	137	11,648	8,040	6,500	148	69.0	55.8	1.27

A, taught speech; B, taught wholly or chiefly by the Oral Method; C, taught wholly or chiefly by the Auricular Method.

The percentages in the above table, in the direction and measure of the changes that they show, are illustrated in the diagram:



A, pupils taught speech; B, taught wholly or chiefly by the Oral Method; C, taught wholly or chiefly by the Auricular Method.

The following table gives the number of instructors of the several classes indicated, as compiled from the Annals footings. It will be noted that since 1897 the industrial teachers have been included in the returns to the Annals and hence in its totals. The percentages as computed relate exclusively to the academic teachers, there being no means of determining the number or percentage of industrial teachers employing articulation in their work of instruction:

INSTRUCTORS OF THE DEAF IN THE UNITED STATES.

Statistics from the Annals.

Year.	Total teachers.	Industrial teachers.	Not including industrial teachers.		
			Total teachers.	Articulation teachers.	
				Number.	Percentage.
1893	.....	....	765	331	43.3
1894	.....	....	784	372	47.4
1895	.....	....	835	397	47.5
1896	.....	....	879	427	48.6
1897	1,188	260	928	487	52.5
1898	1,253	304	949	530	55.8
1899	1,309	323	986	561	56.9
1900	1,353	343	1,010	588	58.2
1901	1,385	358	1,027	641	62.4
1902	1,388	349	1,039	664	63.9
1903	1,438	373	1,065	696	65.4
1904	1,453	328	1,125	734	65.2
1905	1,491	332	1,159	749	64.6
1906	1,525	351	1,174	765	65.2
1907	1,552	359	1,193	767	64.3

Since the last report in the Annals new schools have been established or added to the list, as follows: At Dundee, Ill., in charge of Miss Mary A. Loar; at Moline, Ill., in charge of Miss Ettie B. Root; at Iron Mountain, Mich., in charge of Miss Anna M. Trondsen; at Marquette, Mich., in charge of Miss Maria P. Templeton; at Sault Ste. Marie, Mich., in charge of Miss Jessie L. Thew; at Rice Lake, Wis., in charge of Miss Katharine Fulton; at Seattle, Wash., in charge of Miss M. Ina Smith. Schools discontinued or dropped from the list are, the Yale Avenue (Chicago) School, and the Elyria (Ohio) School. F. W. B.

Tongue manipulators, used by articulation teachers, for sale. Price, 40 cents each. Address the General Secretary.

THE DISCUSSION OF DR. CROUTER'S PAPER AT THE EDINBURGH INTERNATIONAL CONFERENCE.

Our members, both active and associate, have received copies of the Circular of Information issued by the Association, containing Dr. Crouter's paper, read at the Edinburgh Conference. The receipt of the published report of the proceedings of the Conference makes it possible now to present the discussion following the reading of the paper, which we feel sure the readers of the REVIEW will be pleased to have in full. The discussion was as follows:

The CHAIRMAN[1]: Ladies and gentlemen, I am sure you will wish me on your behalf to tender your hearty thanks to Dr. Crouter for the excellent address to which we have listened with so much pleasure. It shows what I might almost call an ideal state of things. Every part of the instruction, and every possible arrangement seems to have been the object of very careful thought. I may say that somewhat similar ideas have been in the minds of us for some time. My professional friends will remember that about ten or fifteen years ago such subjects as those engaged our attention very much, and the result was that various standards of instruction were laid down, which, having been accepted to some extent, we have been able to carry out. We have not been fortunate enough to have all the resources that Dr. Crouter has in his institution, so we have not been able to achieve the same results which have evidently been realized in the Pennsylvania Institution. One point on which I think we may congratulate ourselves in our state of, I won't say disorganization, but of less perfect organization, and that is that the ages of our pupils and those of Dr. Crouter differ very materially. He carries his pupils, I think, up to twenty-one or so. Ours leave at sixteen. Consequently a great deal of the advanced instruction he has so ably shown us we are not able to provide for. There is another point I should like to mention. We have heard the expression of Dr. Crouter's own ideas, evolved from his own experience and his own knowledge of the subject, as to the relative difference of the oral and the silent method. That of course is a matter of dispute. We might say now at our age of history, it is a matter of opinion, and as such you must accept what Dr. Crouter has said as the result of his own experience. It does not necessarily bind this Conference. (Hear, hear.) The last word on the subject has not yet been said. We have had our battles royal over it, and at the present time we are in a state of neutrality. I think we are leaving the subject to effect its own result. I have no doubt that will be brought about in the proper way. We have all our own opinions on the subject. I may say that my opinion coincides to a very great extent with Dr. Crouter's. But others have not arrived at that point yet. I was some time in getting to it. Be that as it may, I should like to call your attention to the fact

[1] Dr. Richard Elliott.

that these opinions do not bind the Conference. If any lady or gentleman wishes to ask Dr. Crouter a question, now is the time. By way of setting the ball a-rolling, I should like to ask Dr. Crouter if there is any provision for recreation in his school?

Dr. CROUTER: There are regular hours provided for recreation. We take great care to do that. Our boys and girls engage in all manner of games. We have a physical training department in which an efficient system is used, and the directions in which are given by and through speech. We provide ample recreation for all our pupils, although they have to work pretty hard. (Applause.)

Sheriff PENNEY: I quite agree with the Chairman that it would be very undesirable to discuss or debate open questions. I am a co-director of an institution wishing to learn, and whatever my prejudices, I have an open mind to hear what can be said on all sides. I think the great value of the papers we have had read to us from all parts of the world is that we have been given statements of what is being done in the different schools, and statistics from which we can draw our own conclusions. (Applause.) There has been no attempt made even by such an enthusiast for the oral system as Dr. Crouter to talk antagonistic to the other systems. He states his case with great force. While I express my great pleasure at what has been said, I have to acknowledge that my prejudices in favor of the combined system have been very much shaken. (Applause.) I understand the oral system can only be carried out under very favorable conditions. I mean, as Dr. Crouter stated, you must have almost complete segregation of the one class of children from the other. As a director of our boarding institution I would like to ask Dr. Crouter one or two questions. They are—What communication have the children with their homes during the school session? Do they go home weekly or monthly, or for so many months of the year? What is the communication in their homes during the session? How long holidays have they? And what do the children do at their homes? Do they find that in their communication with their brothers and sisters and their parents they can keep up the oral system, or do they fall back into the manual system? What happens when they leave school? We hear that the oral system in this country, even when acquired, is given up when the children get home. Is Dr. Crouter's experience that it is being kept up in the homes of America? Dr. Crouter made one admission, I think it may be an admission to the present state of matters. He said that the manual method must always remain a valuable means of communication among the adult deaf. (Applause.)

Mr. STORY: Would Dr. Crouter kindly tell us what proportion of children admitted into the primary grades of his school are the congenital deaf?

Dr. CROUTER: I think it is generally stated that about 23 per cent of the deaf in our schools constitute the adventitious class. They have become deaf through disease or accident. All the others are either born deaf or have become deaf very early in life. That

percentage holds good with us. We admit to our primary department the born deaf, those who are totally deaf, without restriction of any sort. In the advanced department the proportion of the born deaf to those who are totally deaf, whether from disease or accident, bears the same proportion as it does in the other departments. In other words, do not for a moment think that the advanced department is composed of semi-mute and semi-deaf pupils, for such is not the case. (Applause.) I am afraid that in asking for questions we shall get into a discussion on the methods of teaching the deaf. That I shall avoid. I never had any thought in presenting a report of the work of the school at Philadelphia of entering upon a criticism of the objects pursued in other schools. I was asked by my friend, Mr. Addison, to present the methods of instruction that are pursued in my school, and that task I have endeavored to fulfill. (Applause.) The children have a summer vacation of about twelve weeks, when they all go to their homes. In addition, they have about twelve or fourteen days at Christmas, and they have another vacation period at Easter. I cannot answer fully and definitely whether at all the homes they communicate in a certain system, because I am not acquainted with all the homes; but this I will say, that so far as my information extends, the communication between the parents and adults at home is oral—(applause)—for the very good reason that in the great majority of instances the parents of deaf children know no other way of communicating. (Applause.) They do not understand sign language. They can understand if their children can talk. Even if the pupil's speech is very imperfect, it is quite sufficient if that speech is understood by the father and the mother. (Applause.) I have been surprised that speech that I have considered as being very imperfect has been fully understood at home in the family circle. (Applause.)

Sheriff PENNEY: Do you find that children in after-life do not, in intercourse with those of their own family, require to go back to signs?

Dr. CROUTER: No, my experience is that they resort to speech, and frequently the speech is imperfect in the home circle. (Applause.)

Mr. ILLINGWORTH: I should like to ask a question. In the primary department, the children in the second year seem to possess a good deal of language. Can these children speak and lip-read all the language that they understand in the written form?

Dr. CROUTER: Undoubtedly, they must understand the spoken word before they receive the written word. (Applause.)

Copies of "The Mechanism of Speech," by Alexander Graham Bell (second edition, with Synopsis and Index added), on sale at $1.20 per copy. Address orders to F. W. Booth, General Secretary, 1525 35th St., N. W., Washington, D. C.

THE COMMITTEE ON INTERNATIONAL STATISTICS APPOINTED BY THE EDINBURGH CONFERENCE OF TEACHERS OF THE DEAF.

The Report of the Proceedings of the International Conference at Edinburgh gives the full list of the Committee on International Statistics as appointed at the Conference, and we reproduce it here for the information of our readers and for reference uses. Steps are being taken, we have been informed by the secretary, to have the Committee enlarged to include members to act for countries that as yet have no representatives:

America	Prof. F. W. Booth, Washington. Prof. E. A. Fay, Kendall Green, Washington.
Denmark	Mr. A. Hansen, Nyborg.
France	Prof. Bélanger, Paris. M. Dupont, Paris.
Holland	M. Roorda, Groningen.
Italy	Prof. Giulio Ferreri, Rome.
Russia	Mdle. Külpe, St. Petersburg.
Australia—	
Queensland	Sir Horace Tozer, Agent-General.
Victoria	Mr. F. Tait, Director of Education.
S. Australia	Mr. Williams, Director of Education.
Canada	Mr. J. Fearon, Halifax, Nova Scotia.
New Zealand	Mr. G. Hogben, Inspector-General.
South Africa	Mr. W. H. Nicholas, Natal.
Great Britain and Ireland	Mr. B. St. John Ackers (Chairman), England. Mr. B. P. Jones, England. Mr. J. W. Fisher (Secretary), England. Mr. W. H. Addison, Scotland. Mr. J. Beattie, Ireland. (And Office-bearers of the N. A. T. D.)

The above Committee to have power to add members from countries not represented at the Conference.

SUPERVISING PRINCIPALS.

The gradual extension of the practice in our schools of appointing supervising teachers or principals of departments, is one of the gratifying signs of the times, indicating as it does the growing appreciation on the part of governing authorities of the value of expert supervision, skillful leadership, and centered responsibility in the conduct of the strictly educational work of the schools. The most

recent appointments that have come to notice of supervising principals are, that of Mr. M. C. Boylan in the Mississippi Institution, Mr. A. Webster Dobyns in the Arkansas Institute, Miss Nettie McDaniel in the Georgia School, Miss Helen G. Throckmorton in the Virginia School, Miss Bettie L. Bowles in the Utah School, Miss Frances McKinley in the South Dakota School, and Miss N. Louise Upham in the North Carolina School.

THE WORK OF THE TEACHERS' BUREAU.

The annual report of the General Secretary to the Board of Directors gave the work of the Teachers' Bureau during the past seven years that it has been in operation, as follows. The tabulation shows the number of persons who have made use of the Bureau in classes as teachers, principals of schools, and parents of deaf children, in the years indicated:

Using the Bureau in—	Teachers.	Principals.	Parents.	Total.
1901	56	20	7	83
1902	71	18	8	98
1903	82	19	2	103
1904	83	21	4	108
1905	81	22	10	113
1906	85	27	20	132
1907	61	37	9	107

The past year, as the figures show, the demand for teachers on the part of principals has been greater than ever before, while the supply of teachers available through the Bureau has been less than in any year since 1901. This is a significant fact and one having many bearings, but it bears most, perhaps, upon the subject of the training work now doing and in contemplation by the Association and other agencies, and upon the immediate necessity of enlarging and strengthening that work wherever it is being prosecuted upon practical and effective lines. In this connection, and with the work of the Bureau for the coming year in view, we urge upon all who contemplate making use of the Bureau, either as teachers seeking positions, or as principals or parents desiring teachers, that they indicate their wishes as early in the year as possible, and, moreover, that teachers particularly inform the Bureau at once when engagements are consummated. F. W. B.

THE APPOINTMENT OF A STATE OCULIST RECOMMENDED.

Governor Vardeman of Mississippi, in his recent message to the Legislature of that State, in addition to commending in high terms the management of the State School for the Deaf, located at Jackson, the State capital, makes the following very practical recommendation. It should be remembered that several, if not all, of the State institutions of Mississippi are located at the capital:

"I would recommend that the office of State oculist be created, whose duty it should be to treat the pupils in the institutions for the blind, to also treat the eyes of the deaf and dumb students, the inmates of the lunatic asylum and the State penitentiary. It is a singular thing to me that for all these years the State has not provided an oculist to look after and treat the students of the deaf and dumb institution, whose eyes are so necessary to take the place of the power of speech and the sense of hearing which are denied them. There are cases which the State oculist should be called upon to treat in the lunatic asylum, and there is pressing necessity for his services in the State penitentiary."

NEW MEMBERS.

The following named persons have been elected to Active Membership in the American Association to Promote the Teaching of Speech to the Deaf, by vote of the Board of Directors. The list includes those elected since the last published report to January 1, 1908:

Babbitt, Mrs. Frank Cole, 65 Vernon St., Hartford, Conn.
Balch, Grace A., School for the Deaf, Providence, R. I.
Behmer, Flora A., School for the Deaf, Indianapolis, Ind.
Betson, Anna L., 116 North 26th St., Omaha, Neb.
Betts, O. A., Goldsboro, N. C.
Bowman, Blanche, School for the Deaf, Morganton, N. C.
Burke, Amy M., School for the Deaf, Belleville, Canada.
Camp, Hope, 26 Clinton St., Watertown, N. Y.
Carter, Maud, School for the Deaf, Indianapolis, Ind.
Clarke, Elizabeth H., School for the Deaf, Morganton, N. C.
Collignon, Victor, Director School for the Deaf, 254 rue St. Jacques, Paris, France.
Cram, Fannie A., Jacksonville, Illinois.
Cullen, Barbara C., 2700 Fannin St., Houston, Texas.
Director dell Instituto Gualaudi per Sordomuti, 151 Via dei Gracchi, Rome, Italy.
Farmer, Orpha, School for the Deaf, Mystic, Conn.
Forbes, Cora B., 453 Grey Ave., Webster Groves, Mo.
Galloway, Wm. C., School for the Deaf, Berkeley, Cal.

Greenslade, Geo. H., School for the Deaf, Doncaster, England.
Haeseler, Charlotte S., School for the Deaf, Northampton, Mass.
Haycock, Geo. Sibley, Training College for Teachers, 11 Fitzroy Square, London, England.
Heinosuke, Watanabe, Deaf, Dumb, and Blind School, Osaka, Japan.
Hewitt, Edith H., Training College for Teachers of the Deaf, Eaton Rise, Ealing, London, England.
Hill, Marion C., School for the Deaf, Providence, R. I.
Holt, Martin H., Oak Ridge, N. C.
Jennings, Mrs. Richard W., 37 Sumpter St., Providence, R. I.
Jones, Benj. P., 15 Denmark Ave., Wimbledon, London, England.
Kolp, E. R., Fort Worth, Texas.
Kutner, S., School for the Deaf, 101 Nightingale Lane, London, England.
Lane, Thomas H., 1825 Bluff St., Pittsburgh, Pa.
Lloyd, David, 128 W. Eleventh St., New York City.
Loar, Mary, School for the Deaf, Dundee, Ill.
Lowry, Frances, School for the Deaf, Hartford, Conn.
McNamar, Mary, School for the Deaf, Salem, Oregon.
Morrill, Anna L., Falkland, N. C.
Musser, Mary L., Home for Deaf Children, Bala, Philadelphia, Pa.
Nelson, Wm., School for the Deaf, Old Trafford, Manchester, England.
Norris, Susan Hartman, 534 West 187th St., New York City.
Pickering, Mrs. Nellie W., 5025 Michigan Ave., Chicago, Ill.
Read, Elmer D., School for the Deaf, Edgewood Park, Pa.
Regan, Margaret A., 63 West 128th St., New York City.
Richards, Sybil B., School for the Deaf, Providence, R. I.
Roberts, Margaret Harding, 431 North Third St., Danville, Ky.
Roe, Fred H., Royal Institution for the Deaf, Derby, England.
Rousseau, E. M., Box 311, Somerset, Ky.
Smith, M. Ina, School for the Deaf, 20th and E. Thomas Sts., Seattle, Wash.
Stelling, H., Ostfriesische Taubstummenanstalt, Emden, Germany.
Stevenson, W. E., 84 State St., Boston, Mass.
Stout, Prof. J. H., Menominee, Wisconsin.
Tillinghast, Robina L., 309 Willard St., Durham, N. C.
Uline, Minnie V. A., School for the Deaf, Mt. Airy, Philadelphia.
Whitcher, Cora M., 534 West 187th St., New York City.
Wilson, J. Charles, 541 Third Ave., Pittsburgh, Pa.
Wilson, Mrs. L. L. W., Normal School, 13th and Spring Garden Sts., Philadelphia.
Williams, M. Claudia, 200 High School St., Scranton, Pa.
Winnie, A. J., State Inspector of Deaf Schools, Madison, Wis.
Woodcock, Ellen C., School for the Deaf, Providence, R. I.
Wood, Lila W., School for the Deaf, Cedar Spring, S. C.
Ziegler, Clara Meserve, 1 Ellis St., Roxbury, Mass.